

**DESCRIBING THE USE OF MICROSOFT® LYNC™ IN THE TEXAS A&M
AGRILIFE EXTENSION SERVICE AMONG COUNTY EXTENSION AGENTS**

A Record of Study

by

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ABSTRACT

The purpose of this study was to describe the use and acceptance of Microsoft® Lync™ among agents from the Texas A&M AgriLife Extension Service. A survey research design was used with an on-line questionnaire containing 23 items. The questionnaire was modified from the Unified Theory of Acceptance and Use of Technology (UTAUT) model and found to be a reliable and valid instrument. The UTAUT scale was developed by Venkatesh, Morris, Davis & Davis (2003) to assess users' technology preferences. Constructs examined in this study were performance expectancy, effort expectancy, and self-efficacy.

Six-hundred-thirty-six county Extension agents employed during January 2014 participated in the study. The survey instrument was administered on-line using Qualtrics® On-line Surveys. According to the Qualtrics data, there were 340 respondents yielding a response rate of 53% with a dropout rate of 2%. Descriptive statistics (mean and standard deviation) were run on the performance expectancy, effort expectancy, and self-efficacy constructs to determine county Extension Agents' agreement of usage and acceptance of Microsoft® Lync™. Demographics collected during the Microsoft® Lync™ study were used to determine if there were significant differences of means. These personal characteristic variables included gender, Extension region, Extension program area, Extension experience, and size of county population.

Significant differences based upon gender and program area. Females composed a larger portion of the sample at 54% and scored significantly higher on a number of questions. The second demographic value that demonstrated significant differences were the program areas of 4-H and Youth Development, Family and Consumer Sciences, Horticulture, and Agriculture and Natural Resource. Essentially, 4-H agents had significantly higher means on items regarding Lync™ usage. Mean, standard deviation, and t-tests/ANOVA were used for this portion of the survey results. Performance expectancy earned a reliability coefficient of .92 and effort expectancy of .91 in this study. Thus, the internal consistency of performance expectancy, effort expectancy, and self-efficacy was reliable (Cronbach, 1951) and deemed sufficient in order to address the study's research objectives. As a result, Microsoft® Lync™ has proven to be an effective communication and collaboration tool for the Texas A&M AgriLife Extension Service.

DEDICATION

The educational journey throughout my life is dedicated to my Mother, Evelyn Dorene Thorp Calhoun (June 13, 1944 – February 20, 2000), who taught me important life lessons. She was my biggest fan, my cheerleader, and my mentor. She gave me confidence in myself to pursue and accomplish anything I set my mind to do. I know she would be proud.

I miss you, Mom! I wish I could pick up the telephone and call you one last time to tell you all about the past 14 years. Our two-to-three hour conversations would last for days in that one last phone call.

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support staff members for their unconditional support during this time. I could not have made it without you!

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in Extension. She was such an inspiration! With each opportunity I have pursued, I have become a much improved educator.

I also had the opportunity to reunite with one of my undergraduate Home Economics Professors that had made such an impact on my undergraduate career. Her name is Dr. Sarah Sienty and she moved to Secondary and Higher Education after I graduated in 1991 with my Home Economics degree. Though I did not take any courses under her direction, I was able to consult with her about my graduate pursuit.

And the one teacher in grade school and later high school that has had such an impact; not only on me, but most of my classmates, was Mr. Ronnie Gracy. He had a totally different way of teaching. We had more freedom and unconventional opportunities in his classes. Sadly, he was diagnosed with a malignant brain tumor at thirty-eight years of age, January 1987. We graduated on June 7, 1987 and Mr. Gracy was onstage, escorting us into the next chapter of our lives. We attended his funeral the following week. I cannot quite put into words what he taught us because it was so much more than science, but it was one of the most profound experiences of my life.

I know I may have accidentally omitted thanking someone; but know that everyone that has been with me through this journey, has touched my life.

NOMENCLATURE

4-H	4-H and Youth Development
AGNR	Agriculture and Natural Resources
ALIT	AgriLife Information Technology
ANOVA	Analysis of Variance
BI	Behavioral Intention
CEA	County Extension Agent
CITI	Collaborative Institutional Training Initiative
DEA	District Extension Administrator
EE	Effort Expectancy
FC	Facilitating Conditions
FCS	Family and Consumer Sciences
HORT	Horticulture
IDT	Innovation Diffusion Theory
IM	Instant Message
IRB	Institutional Review Board
MM	Motivational Model
PE	Performance Expectancy
PBC	Perceived Behavioral Control
RITS	Regional Information Technology Specialists
RPL	Regional Program Leader

SE	Self-Efficacy
SSL	Secure Sockets Layer encryption
TAM	Technology Acceptance Model
TAMU	Texas A&M University
UC	Unified Communications
USDA	United States of Agriculture
UTAUT	Unified Theory of Acceptance and Use of Technology
VoIP	Voice over IP

TABLE OF CONTENTS

	Page
ABSTRACT.....	ii
DEDICATION.....	iv
ACKNOWLEDGEMENTS	v
NOMENCLATURE.....	viii
TABLE OF CONTENTS.....	x
LIST OF FIGURES.....	xii
LIST OF TABLES.....	xiii
CHAPTER I INTRODUCTION.....	1
Background Information	1
Overview of Microsoft® Lync™ Technology	4
Problem Statement	5
Purpose of the Study.....	6
Research Objectives	6
Theoretical Framework	7
Significance of the Study	8
Limitations and Assumptions.....	9
Communicating Results	9
Definition of Terms	9
CHAPTER II REVIEW OF LITERATURE.....	17
Introduction	17
Celebrating the 100 th Anniversary of the Texas A&M AgriLife Extension Service	18
Adult Education and Extension.....	20
Andragogy	22
Adult Teaching Methods.....	23
Distance Education and Communication/Collaboration Tools	24
Theoretical Framework	27
Unified Theory of Acceptance and Use of Technology (UTAUT) Model	28
User Acceptance Models and Theories that comprise the UTAUT Model	30
Theory of Reasoned Action (TRA).....	32
Technology Acceptance Model (TAM)	33

	Page
Motivational Model (MM)	34
Theory of Planned Behavior (TPB)	35
Combined Technology Acceptance Model and Theory of Planned Behavior	36
(C-TAM-TPB).....	36
Model of PC Utilization (MPCU)	36
Innovation Diffusion Theory (IDT)	37
Social Cognitive Theory (SCT).....	39
Previous Research using the UTAUT	40
CHAPTER III METHODOLOGY	43
Design Overview	43
Census	45
Instrumentation.....	46
Data Collection.....	49
Data Analysis	51
Ethical Considerations.....	53
CHAPTER IV FINDINGS	54
CHAPTER V CONCLUSIONS, DISCUSSION, AND, RECOMMENDATIONS.....	65
Conclusions and Discussion.....	67
Recommendations	72
Research	72
Practice	75
Summary	76
REFERENCES	79
APPENDIX A	90
APPENDIX B.....	92
APPENDIX C.....	95
APPENDIX D	97
APPENDIX E	107
APPENDIX F	109
APPENDIX G	111

LIST OF FIGURES

FIGURE	Page
2.1 Unified Theory of Acceptance and Use of Technology Model	29
3.1 Microsoft® Lync™ Use among County Extension Agents in the Texas A&M AgriLife Extension Services	52

LIST OF TABLES

TABLE	Page
2.1 Models and Theories of Individual Acceptance.....	31
4.1 Descriptive Statistics for Performance Expectancy Items (N = 340).....	57
4.2 Descriptive Statistics for Effort Expectancy Items (N = 340)	58
4.3 Descriptive Statistics for Self-Efficacy Items (n = 340)	59
4.4 Descriptive Statistics for Lync™ Features.....	60
4.5 T-test for Determining Significance in the Acceptance and Use of Lync™ by Gender	61
4.6 ANOVA for Determining Significance in the Acceptance and Use of Lync™ by Program Area.....	63

CHAPTER I

INTRODUCTION

Background Information

The development of the national cooperative Extension service dates back a century to the signing of the Smith-Lever Act (1914) introduced by Senator Hoke Smith of Georgia and Representative A. F. Lever of South Carolina to broaden agriculture and home economics in American rural areas (Gould, Steele, & Woodrum, 2014). The conception of a formal process for supplying information and services to the people of the United States was an unprecedented plan at the time (Gould, et al., 2014; Rasmussen, 1989). Extension provided local structure for rural communities to receive research-based information to use in everyday agricultural and homemaking practices (Texas A&M AgriLife Extension Service Organizational Development Unit and the Agricultural Leadership, Education, and Communications Department, 2014). As stated in The Texas State Historical Association:

The United States Congress passed the Smith-Lever Act, which instituted the Cooperative Extension Service, on May 8, 1914. Texas A&M joined the service in June 1914, and the Texas Agricultural Extension Service became part of the Texas A&M system. On January 29, 1915, the Texas legislature accepted the provisions of the Smith-Lever Act and assigned the Texas Extension Service to Texas A&M for administration. (May, 2010, para. 1)

According to Ferguson (1964), as time progressed, Extension became widely known for its innovativeness in technology through the application of science to the common farmer, homemaker, and agricultural marketer. “Extension’s history has been one of innovation—in methods, in subject matter, in audience. Its birth was an innovation. Its early growth was nourished by innovation. Its’ success was measured by innovation” (Ferguson, 1964, p. 153). As discussed by Gould et al. (2014), the Smith-Lever Act (1914) has been traced to such leaders as Seaman A. Knapp and George Washington Carver. Knapp is known as the father of the national cooperative Extension service and recognized as an innovator for “helping others help themselves” (Westwood, 1973, p. 35). He was an agent in the United States Department of Agriculture who brought programs to the farming communities, just as he developed demonstration farms in Greenville and Terrell, Texas (May, 2010, para. 1). Knapp’s work in the south included the introduction of rice as an alternative crop and helping farmers use a quicker method for growing cotton to resist damage from boll weevils (Gould, et al, 2014; Rasmussen, 1989). Ferguson (1964) stated, “Seaman A. Knapp had been successful in his venture with the practical demonstration as an educational device” (p. 152).

Other early innovators of the Texas Agricultural Extension Service were the first extension agents—the forerunners of today’s agriculture and natural resources, 4-H and youth development, and family and consumer sciences agents—William C. Stallings, Tom M. Marks, and Edna W. Trigg (May, 2010). “These visionary leaders worked hard to expose farmers to the new technologies and techniques coming forth from agriculture schools by doing on-farm demonstrations, field trips, and home visits to show the

practical applications of this knowledge” (Gould et al., 2014, para. 3). Many innovations evolved from the Texas Agricultural Extension Service, now known as the Texas A&M AgriLife Extension Service: corn clubs, tomato clubs, and home demonstration clubs, to name a few (May, 2010). Thus, County Extension Agents (CEAs) are change agents as defined by Rogers (2003). A change agent influences clientele to make educated decisions regarding new technology (Rogers, 2003). By influencing clients in this manner, the change agent can encourage “decisions in a way that is deemed desirable by a change agency” (Rogers, 2003, p. 27). These professionals continue to explore ways to reach clientele with research-based, educational programming in their fields of study. Throughout the past 100 years, Extension agents have received information via the United States Postal Service and on-site training at district centers, and various locations. Since access to the Internet and the implementation of e-mail in the early 1990’s, Extension embarked on the new technology age. Agents received correspondence and training materials in a whole new way; thus, information technology support became an increasing demand.

The AgriLife Information Technology (ALIT) department works with the Texas A&M AgriLife Extension Service to support Extension’s mission and goals to train professionals to use technologies effectively (AgriLife Information Technology, 2012). “The Texas A&M AgriLife Information Technology department provides strategic IT leadership, management oversight and enterprise IT services for customers within the Texas A&M AgriLife System” (AgriLife Information Technology, 2012, para. 1). The ALIT website provides information technology services to help Texas A&M AgriLife

System employees improve productivity in the areas of computer usage and technological skills. The ALIT department consists of 30 professionals and is divided into five units. The Regional Information Technology Specialists' (RITS) unit has responsibility for extension offices in 250 Texas counties with Extension presence in the 254 counties. A major part of the RITS' job responsibility is spent supporting and consulting agents in workstation assistance. The RITS' unit performs a smaller role in providing technology training to agents and support staff. RITS serve as change agents to introduce new technology tools to the Texas A&M AgriLife Extension Service.

Overview of Microsoft® Lync™ Technology

Microsoft® Lync™ connects users in new ways enabling them to reach others in various locations. “The latest release of the Unified Communications (UC) platform delivers a fresh, intuitive user experience that is directly accessible from Microsoft® Office applications such as Microsoft® Outlook™, Microsoft® Word™, and Microsoft® SharePoint™” (Forrester Consulting, 2012, p. 4). UC features in a software program assist IT departments to quickly upgrade existing servers and offer communication/collaboration features to their users (Forrester Consulting, 2012). These features allow users to access “all modes of communication with voice, video, messaging, and presence” (Davis & Haskins, 2012, p. 3). Due to the rapid advancement in technology, County Extension Agents (CEAs) are collaborating differently with their co-workers and connecting to Extension audiences via technology such as WordPress™, YouTube™ and Microsoft® Lync™. Until Microsoft® Lync™ was introduced to

agents there was not a uniform system for distance communication among Extension users.

In the Microsoft® Lync™ study, the tool was implemented by the Texas A&M AgriLife Extension Service and installed by the ALIT department who provided training and guidance to users. RITS deployed Microsoft® Lync™ and trained agents to use the technology tool. Agents learned immediately how to send instant messages, begin video calls, make Voice over IP (VoIP) phone calls, and determine presence status of others. After deployment, RITS conducted voluntary training via Centra™ to review what agents had learned and to teach them about the capabilities of the product. Extension administration provided Microsoft® LifeCam™ webcams for all agents and required them to have Microsoft® Lync™ installed on their computers. It was recommended that Microsoft® Lync™ be connected at all times, when possible. Though, Internet connectivity in some county offices may make this difficult because the Internet Service Provider (ISP) may be unable to provide enough band-width to the office to maintain the level of connectivity needed to run Microsoft® Lync™ effectively for constant use. Administration is aware that these technical issues exist.

Problem Statement

The budget of the Extension Service is primarily comprised of salaries for employees. AgriLife Extension has lost a number of faculty members in 2011, as it did in 1988, 1991, and 2002. “Extension systems have felt the effects of reduction in budgets, personnel, and other resources” (Davis, Cochran, & Thomas, 2009, p. 124). The Texas A&M AgriLife Extension Service continues to do more with fewer resources.

Reduced budgets leave less room for expenditures on annual technology upgrades. So the implementation of a unified technology like Microsoft® Lync™ has the potential to reduce those expenditures and improve opportunities for communication and collaboration across the Extension Service. Prior research regarding the implementation and evaluation of a collaboration tool such as Microsoft® Lync™ is limited. The researcher acknowledges some studies have been conducted in the business arena, but academic studies have been difficult to locate. In studies involving products such as Microsoft® Lync™, the information gathered can be utilized in on-going research for technological collaboration tools within educational organizations (Arnold, 2007).

Purpose of the Study

The purpose of the study was to learn about Microsoft® Lync™ technology acceptance and use among Extension professionals in order to share with the Texas A&M AgriLife Extension Service administration and the AgriLife Information Technology department. The study's focus was based on the modified UTAUT instrument and included constructs for performance expectancy, effort expectancy, self-efficacy, Microsoft® Lync™ features, and personal characteristics of the users.

Research Objectives

1. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *performance expectancy*.
2. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *effort expectancy*.

3. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *self-efficacy*.
4. Describe *Microsoft® Lync™ features* most often used by county Extension agents.
5. Describe the influence *demographic variables* have on the acceptance and usage of technology by county Extension agents.

Theoretical Framework

The Unified Theory of Acceptance and Use of Technology (UTAUT) presented by Venkatesh, Morris, Davis, and Davis, (2003) is a “model for technology acceptance that outperforms other models” (El-Gayar & Moran, 2005, p. 2845). As described by Venkatesh et al. (2003), UTAUT includes components from eight models consisting of the theory of reasoned action (TRA), the technology acceptance model (TAM), the motivational model (MM), the theory of planned behavior (TPB), a model combining the technology acceptance model and the theory of planned behavior (C-TPB-TAM), the model of PC utilization (MPCU), the innovation diffusion theory (IDT), and the social cognitive theory (SCT). UTAUT has four main constructs consisting of performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) as described by Venkatesh et al. (2003). These researchers define the following constructs: (a) PE “is the degree to which an individual believes that use will improve job performance” (p. 447), (b) EE “is the degree of ease of use” (p. 450), (c) SI “is the degree in which one perceives important individuals” (p. 451) believe in use, and

(d) FC “are the degree to which one believes” (p. 453) an organization exists for support (Venkatesh, et al., 2003).

Significance of the Study

As stated in the problem, a majority of Extension’s budget consist of salaries for employees. According to Davis et al. (2009), Extension continues to experience cuts in workforce, fiscal items, and other resources. However, there has been a substantial rise in on-line educational activity with demographics linked to a workforce who is more technologically advanced (Davis et al., 2009; Kranz, 2008). As supported by Weatherly (2005), pressure to do more with less and increases in eLearning participation suggests that audiences want convenient access to synchronous and asynchronous electronic experiences. Extension is pursuing a variety of distance educational opportunities due to budget constraints. According to Case and Hino (2010, para. 2), educators should think of “digital media as learning objects that can be arranged in different ways to build different learning experiences.” These objects can be tailored to create various on-line experiences for the learner. Hence, Microsoft® Lync™ will enhance program planning and the internal communication within the agency, as well as improve agents’ training and educational opportunities.

Limitations and Assumptions

This study is limited to Texas A&M AgriLife county Extension agents. However, those with similar contexts may find these results useful for their particular settings. It is assumed that respondents understood all questions in the modified, on-line questionnaire and answered truthfully.

Communicating Results

The audience for the Microsoft® Lync™ results will be shared with Extension administration, ALIT administration, and specialists. An executive summary will be shared with the audience. The study will be shared in a Microsoft® PowerPoint™ presentation. A record of study will be prepared and article(s) will be submitted for publication to a professional journal.

Definition of Terms

AgriLife Information Technology (ALIT): “This department provides strategic information technology leadership, management, and services for extension employees” (Texas A&M AgriLife Information Technology department, 2012, para. 1).

Analysis of Variance (ANOVA): “A statistical technique for determining the statistical significance of differences among means; it can be used with two or more groups” (Fraenkel & Wallen, 2009, p. G-1).

Andragogy: “The art and science of helping adults learn” (Knowles, Holton, & Swanson, 2005, p. 61).

Attributes of an Innovation: “Five characteristics of innovations: relative advantage, compatibility, complexity, trialability, and observability that show how

individuals' perceptions predict the rate of adoption of innovations" (Rogers, 2003, p. 219).

Census: "An attempt to acquire data from every member of a population" (Fraenkel & Wallen, 2009, p. G-1).

Change Agent: "An individual who influences clients' innovation – decisions in a direction deemed desirable by a change agency" (Rogers, 2003, p. 27).

Collaborative Institutional Training Initiative (CITI): "To promote the public's trust in the research enterprise by providing high quality, peer reviewed, web based, research education materials to enhance the integrity and professionalism of investigators and staff conducting research" CITI Program Mission Statement, 2012, para. 1).

Compatibility: "The degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003, p. 240).

Complexity: "The degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2003, p. 257).

County Extension Agent (CEA): According to Extension, "The county Extension agent's primary role is to inform and teach. Agents provide information for local residents in workshops and seminars, at community events, through the media, and with a variety of information technology tools. An equally important part of the job is working with people. Agents work as a team with other agents in the county office. And they work extensively with committees of local residents to identify educational

needs and with volunteers who help implement programs to meet those needs” (Texas A&M AgriLife Extension Service CEA Position Description, 2014, para. 1).

Cronbach Alpha: “An internal consistence or reliability coefficient for an instrument requiring only one test administration” (Fraenkel & Wallen, 2009, p. G-2).

Cross-Sectional Survey: “A survey in which data are collected at one point in time from a predetermined population or populations.” (Fraenkel & Wallen, 2009, p. G-2).

Demographic Questions: “Questions asked by an interviewer or on a questionnaire to obtain information about a respondent’s background such as gender, age, occupation, etc.” (Fraenkel & Wallen, 2009, p. G-1).

Descriptive Statistics: “Data analysis technique that enable researcher to meaningfully describe data with numerical indices or in graphic form” (Fraenkel & Wallen, 2009, p. G-2).

Diffusion of Innovation: Developed to “explain how new ideas and technologies are spread and adopted in a community” (Rogers, 2003, p. 29).

Ex Post Facto: “Because both effects and alleged cause(s) have already occurred; and hence are studied in retrospect, causal-comparative research is also referred to as ex post facto (from the Latin for “after the fact”) research” (Fraenkel & Wallen, p. 363).

Experiential Learning: “Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38).

Findings (also known as results of a study): “Explains what is shown by analysis of the data collected; includes tables and graphs when appropriate” (Fraenkel & Wallen, 2009, p. G-7).

Innovation Diffusion Theory (IDT): Core constructs of IDT are: relative advantage, ease of use, image, visibility, compatibility, results demonstrability, and voluntariness of use (Rogers, 2003; Moore & Benbasat, 1991).

Institutional Review Board (IRB): “A research review board of all institutions receiving federal research funds” (Fraenkel & Wallen, 2009, p. G-4).

Mean: (arithmetic mean): “The sum of the scores in a distribution derived by the number of scores in the distribution; the most common used measure of central tendency” (Fraenkel & Wallen, 2009, p. G-5).

Microsoft® Lync™: “A single, unified communications (UC) platform that operates well with Microsoft® Office™, including Outlook™ and Microsoft® Exchange™” (Forrester Consulting, 2012, p. 4). “Lync™ provides a user interface based on identity and presence that brings together voice, instant messaging (IM), audio, video, and web conferencing” (Davis & Haskins, 2012, p. 3).

Observability: “The degree to which the results of an innovation are visible to others” (Rogers, 2004, p. 258).

Pragmatism: A philosophy whereby knowledge is gained from experience rather than from formal education (Merriam & Brockett, 2007; Knowles, et al., 2005).

Qualtrics®: “A sophisticated on-line survey software enabling users to create and conduct on-line questionnaires for research purposes. Data analysis options include

download data, cross tabulations, cross tabulations analysis, conjoint analysis, scoring and grading, and other options such as recoding choice values and variable labels, excluding items from analysis, and renaming question labels for easier reference” (Qualtrics® On-line Surveys, 2013, para. 2).

Quantitative Research: “Research in which the investigator attempts to clarify phenomenon through carefully designed and controlled data collection and analysis” (Fraenkel & Wallen, 2009, p. G-7).

Regional Information Technology Specialists (RITS): support county extension professionals with their technological needs (Texas A&M AgriLife Information Technology department, 2012).

Relative Advantage: “The degree to which an innovation is perceived as better than the idea it supersedes” (Rogers, 2003, p. 229).

Reliability Coefficient: “An index of the consistency of scores on the same instrument” (Fraenkel & Wallen, 2009, p. G-7).

Research Design: “An overall plan to collect data to answer the research question, also the specific data analysis techniques or methods that the researcher intends to use” (Fraenkel & Wallen, 2009, p. G-7).

Secure Sockets Layer (SSL): “Protocol developed by Netscape Communications in 1994 to provide secure communications over the Internet. SSL procedures are most commonly employed on the Web with the Hypertext Transfer Protocol (HTTP) for e-commerce transactions, although SSL is not limited to HTTP (Northcutt, 2011, para. 1);

SSL uses encryption to secure the privacy and integrity of messages and client and server authentication.”

Self-Efficacy (SE): A belief system that is causally related to behavior and outcomes (Bandura, 1977, 1982, 1997; Driscoll, 2000).

Smith-Lever Act of 1914: “Instituted the Cooperative Extension Service, on May 8, 1914. Texas A&M joined the service in June 1914, and the Texas Agricultural Extension Service became part of the Texas A&M system. On January 29, 1915, the Texas legislature accepted the provisions of the Smith-Lever Act and assigned the Texas Extension Service to Texas A&M for administration” (May, 2010, para. 1).

Standard Deviation (SD): “The most stable measure of variability; it takes into account each and every score in a distribution” (Fraenkel & Wallen, 2009, p. G-8).

Summated Scale: “The summated rating scale is one of the most frequently used tools in the social sciences. Its invention is attributed to Rensis Likert (1932), who described this technique for the assessment of attitudes. These scales are widely used across the social sciences to measure not only attitudes, but opinions, personalities, and descriptions of people's lives and environments as well” (Spector, 1992, p. 1).

Survey Research: “Research conducted to attempt to obtain data from members of a population (or a sample) to determine the current state of that population with respect to one or more variables” (Fraenkel & Wallen, 2009, p. G-8).

Texas A&M AgriLife Extension Service: “The Texas A&M AgriLife Extension Service is a unique education agency with a statewide network of professional educators, trained volunteers, and county offices. It reaches into every county in Texas to address

local priority needs. Some of our major efforts are in mitigating drought impacts; conserving water use in homes, landscapes, and production agriculture; improving emergency management; enhancing food security; and protecting human health through education about diet, exercise, and disease prevention and management” (Texas A&M AgriLife Extension Service, 2014, para. 1).

Trialability: “The degree to which an innovation maybe experimented on a limited basis” (Rogers, 2003, p. 258).

Unified Communications (UC): “The concept to give users a single interface to all modes of communication: voice, video, messaging, and presence” (Davis & Haskins, 2012, p. 3).

The Unified Theory of Acceptance and Use of Technology (UTAUT) model: Described by Venkatesh et al., (2003), UTAUT includes components from eight models:

- The theory of reasoned action
- The technology acceptance model
- The motivational model
- The theory of planned behavior
- The model of PC utilization
- The innovation diffusion theory
- The social cognitive theory
- A model combining the technology acceptance model and the theory of planned behavior

UTAUT has four main constructs consisting of performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, et al., 2003).

These researchers define the following constructs:

- performance expectancy as the degree to which an individual believes that using the system will help to improve job performance (Venkatesh, et al., 2003, p. 447).
- effort expectancy as described as the degree of ease related to use (Venkatesh, et al., 2003, p. 450).
- social influence is explained as the degree to which an individual perceives that important others believe in the use of the system (Venkatesh, et al., 2003, p. 451).
- facilitating conditions are defined as the degree to which an individual believes an organization exists to support use of the system (Venkatesh, et al., 2003, p. 453).

Voice over IP: “VoIP makes it possible to communicate via telephone over an IP network using SIP protocol instead of over traditional time-division multiplexing (TDM) voice networks via PBX telephony infrastructure” (Forrester Consulting, 2012, p. 5).

CHAPTER II

REVIEW OF LITERATURE

Introduction

The literature review will provide an overview of the 100-year history of the Texas A&M AgriLife Extension Service, how it relates to the land-grant university, and how each one imparts its foundational basis on the Microsoft® Lync™ study. This chapter will also encompass user acceptance models and theories, scholars and teaching/learning theories of adult education, the eight models included in the Unified Theory of Acceptance and Use of Technology (UTAUT) Model, and the synopsis of the collaboration and communication tool, Microsoft® Lync™. Research was conducted regarding Lync™ in order to conduct a study to see how Extension agents were using the communication tool implemented by the Texas A&M AgriLife Extension Service and the ALIT department. Extension administration mandated every user in the agency have Microsoft® Lync™ installed on their computers. Agents were strongly encouraged to use the collaboration tool for in-house meetings, conferences, and training; as well as using the instant message (IM) and phone features to curb land-line phone expenses and travel costs.

Celebrating the 100th Anniversary of the Texas A&M AgriLife Extension Service

Texas A&M AgriLife Extension Service is part of the Texas A&M University (TAMU) System and celebrated the 100th anniversary of the Smith-Lever Act on May 8, 2014. As stated in *The Land-Grant Legacy in the Lone Star State* (Dethloff & Shurgin, 2012):

The Texas A&M University College of Agriculture and Life Sciences and four state agricultural agencies, Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service, the Texas A&M Forest Service, and the Texas A&M Veterinary Medical Diagnostic Laboratory — all members of The Texas A&M University System — have joined the other land-grant institutions throughout the United States to improve the production, processing, and distribution of food and fiber and meet the needs of a rapidly growing state and nation. (p. 2)

In 1876, the Texas A&M University was known as the Agricultural and Mechanical College of Texas and the first public institution of higher education in the state (Dethloff & Shurgin, 2012). The land-grant university was organized by state legislature under the Morrill Land-Grant College Act of 1862 (Dethloff & Shurgin, 2012). The act allowed for public land to be donated to states and then sold for agricultural and mechanical education and military training funds (Cross, 1999). According to Dethloff and Shurgin (2012), “the land-grant mission was expanded beyond teaching to research with the approval of the Hatch Act in 1887, providing

federal support for the establishment of agricultural experiment stations and resources to solve critical problems confronting agriculture” (p. 2).

To further expand the land-grant mission, the Smith Lever Act (1914) was approved by congress. This act paved the way for the establishment of the agricultural Extension service in the lone star state (Dethloff & Shurgin, 2012). The Texas Agricultural Extension Service was organized by the Texas legislature to provide research-based information from the Texas Agricultural Experiment Station to all farms and communities (Dethloff & Shurgin, 2012). The Smith-Lever Act (1914) supplied the residents of Texas with the structure of grass-roots education provided by an agency that offered pragmatic, research-based information concerning agriculture, home economics, and related subjects (Texas A&M AgriLife Extension Service Organizational Development Unit and the Agricultural Leadership, Education, and Communications Department, 2014). “Not solely a federal program, agricultural extension was set up as a cooperative partnership between federal, state, and local governments in association with another unique American institution – the land-grant university” (Texas A&M AgriLife Extension Service Organizational Development Unit and the Agricultural Leadership, Education, and Communications Department, 2014, para. 1). County commissioners’ courts collaborated with the Cooperative Extension Service to get agricultural information to their residents. This partnership extended cooperation among local governments, state government, and the federal government that remains today (Dethloff & Shurgin, 2012).

Adult Education and Extension

Experiential learning can be linked to significant scholars throughout history including Seaman A. Knapp, John Dewey, and David A. Kolb. Knapp is known as the father of Extension and “had been successful in his venture with the practical demonstration as an educational device” (Westwood, 1973; Ferguson, 1964, p. 152). He was influential in the legislative work of the Hatch Act (1887) that led to research beyond teaching through the land-grant mission (Dethloff & Shugrin, 2012). He was also responsible for creating the first experiment station, establishing the first Extension agent plan, and developing corn and cotton clubs, later known as 4-H clubs (May, 2010). As described by Westwood (1973), Knapp had a functional philosophy of education that was derived from life experiences of the learner. His philosophy is seen in the following excerpt. Knapp said, in a speech given to the Mississippi Agricultural and Mechanical College, June 30, 1894:

Now let us have an education of the masses for the masses, one that will fit them to become honest, faithful, intelligent, toiling, thrifty, common people, upon which alone great nations are founded. (Westwood, 1973, p. 35)

The first Extension agent plan was called the county demonstration agent system and was created to supply much needed technological information via the universities to the experiment stations (Westwood, 1973); providing a new kind of learning for a new kind of audience, hands-on experience for the local people.

Similar to Knapp’s beliefs, John Dewey believed education should be practical and experiential. Dewey is considered to be the father of pragmatism; the philosophy of

wanting to prepare people to live in the real world (Knowles, et al., 2005; Kolb, 1984). Pragmatism has been observed in Extension and can be related to Dewey's concepts of learning and in teaching learners how to function in real world scenarios. His four concepts of learning are: experience; democracy; continuity; and interaction (Knowles, Holton, & Swanson, 2005). Dewey's Model of Learning is a learning process that involves:

(1) observation of surrounding conditions; (2) knowledge of what has happened in similar situations in the past, a knowledge obtained partly by recollection and partly from the information, advice, and warning of those who have had a wider experience; and (3) judgment, which puts together what is observed and what is recalled to see what they signify. (Dewey, 1938, p. 69)

Dewey's contributions can be compared to Kolb's Experiential Learning Model (1984). Kolb (1984) built on earlier work by Dewey and recognized experiential learning "as a process whereby knowledge is created through the transformation of experience" (p. 38). As discussed in the experiential learning model, the four stages are concrete experience (doing – field trips and demonstrations), observations and reflections (observing – discussion and small groups), abstract conceptualization (thinking – sharing content), and active experimentation (practicing – laboratory or on-the-job experience) (Knowles, et al., 2005; Kolb, 1984). Likewise, Extension's use of demonstrations and its hands-on approach to teaching others can be connected to Kolb's stages of the experiential learning model. This can be seen in activities where participants acquire: (a) experience during a foods and nutrition workshop, (b) reflect

during discussion in a leadership session, (c) share content in a poster session, or (d) practice methods learned while working in a volunteer setting; whereby, the educator offers an environment conducive to experiential learning in order for participants to receive a positive educational experience (Dewey, 1938; Enfield, 2001; Schmitt-McQuitty, & Smith, 2007).

Andragogy

Malcolm Knowles introduced andragogy in the early 1970s as “the concept that adults and children learn differently” (Knowles et al., 2005, p. 1). Knowles developed adult education concepts related to self-concept of the learner, the learner’s experience, the learner’s readiness to learn, and the learner’s perspective of time (2005). These concepts can also be linked to the learning theories of Dewey and Kolb because their models include experiential learning in which participants can benefit. Just as Kolb’s stages of experiential learning and Dewey’s concepts of learning emphasize experience as the key component. According to Dewey (1938), all true education emerges from practice. And this can be seen in the foundation of Knowles educational model, *Andragogy in Practice*. Andragogy is a set of core principles for adult learning that apply to all adult learning situations (Knowles et al., 2005).

Knowles’ *Andragogy in Practice* educational model consists of goals and purposes of learning linked to: (a) institutional, individual, and societal growth, (b) individual and situational differences, and (c) subject matter connected to individual learner and situational differences (Knowles et al., 2005). The foundation of adult learning principles in andragogy model include “the learner’s need to know, self-concept

of the learner, prior experience of the learner, readiness to learn, orientation to learning, and motivation to learn” (Knowles et al., 2005, p. 4). According to Knowles et al. (2005), core learning principles are related to: (a) the need to know why, what, and how?, (b) self-concept of the learner is autonomous and self-directing, (c) prior experience of the learner comes from resource and mental models, (d) readiness to learn is life related and includes developmental task, (e) orientation to learning is problem centered and contextual, and (f) motivation to learn is of intrinsic value and personal payoff.

Adult Teaching Methods

As andragogy focuses on the adult learner, Robert Mills Gagne’ addresses learning from the instructor’s point of view. His theory differs because it covers the whole learning process making it a more comprehensive approach (Knowles et al., 2005). Gagne’s Theory of Instruction consists of three elements: a) Taxonomy of Learning Outcomes, b) Conditions of Learning, and c) the Nine Events of Instruction (Driscoll, 2000). According to Gagne’, there are five categories of learning outcomes: verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills (Driscoll, 2000). Gagne’ is best known for his conditions of learning and the nine events of instruction and has been called the father of instructional design (Knowles et al., 2005). “In general, there are two types of literature about learning theory: that produced by propounders of theories (who tend to be single-minded), and that produced by interpreters of theories (who tend to be reconciliatory)” (Knowles et al., p. 18). Gagne’ had made contributions to both. “Because Gagne’ has adopted information-processing

theory as a foundation for his theory, the conditions for learning includes both internal events (such as previously encoded information) and external events (such as methods of elaboration to facilitate encoding)” (Driscoll, 200, p. 347). The nine events of instruction refer to the steps instructors should take to meet learning outcomes:

1. Gaining attention
2. Informing learners of the objective
3. Stimulating recall of prior learning
4. Presenting the content
5. Providing learning guidance
6. Eliciting performance
7. Providing feedback
8. Assessing performance
9. Enhancing retention and transfer (Gagne’ & Medsker, 1996, p. 140).

Because Gagne’s theory is larger in scope than most theorists, it serves as a sound model for instructors (Driscoll, 2000).

Distance Education and Communication/Collaboration Tools

According to eLearning Industry, corporations readily use on-line communication and collaboration tools for adult education and training. “Over 42% of global Fortune 500 companies now use some form of educational technology to instruct employees” (Pappas, 2013, para.2). The National Research Agenda: American Association for Agricultural Education’s Research Priority Areas 2011-2015 (Doerfert,

2011), highlights the importance of further research in the agricultural resource workforce.

An examination of the last one hundred years of U.S. agriculture often highlights the increase in productivity, the technological developments, changes brought about through consumer influences, and policy changes that have both advanced and provided course corrections to the industry. (Doerfert, 2011, p. 9)

According to priority issue 2 from the National Research Agenda: New Technologies, Practices, and Products Adoption Decisions, it is critical to provide “positive outcomes in current and future diffusion efforts, related research, education, and outreach activities” (2011, p. 8). Distance education can be a very effective tool to enable clientele to participate in on-line opportunities that they may not be able to do otherwise. In addition, A Delphi study was performed using Extension educators to find disadvantages and advantages that could be linked to distance education (Dromgoole & Boleman, 2006, para. 6). Participants involved in the study reported that time and travel expenses would be significantly reduced. They concurred that reaching new audiences was also a major advantage of on-line learning. Dromgoole and Boleman (2006) reported that respondents of technology said program usage was highly valued and could be successful in the future. One advantage to using technology tools is that Extension can offer up-to-date, research-based information to its residents. With the integration of new technology, the agency will continue to successfully reach its audiences (Dromgoole & Boleman, 2006).

Extension agents have used a number of distance education and technology tools to enhance job performance and carry out successful programming (Trede & Miller, 1993; Creswell, 1990). Microsoft® Lync™ connects users in new ways enabling them to reach others in various locations. According to Forrester Consulting (2012), unified communications (UC) and collaboration features in a software program assists IT departments to quickly upgrade existing servers and offer communication/collaboration features to their users. The Unified Communications (UC) platform delivers an innovative and convenient user experience that is directly related to Microsoft® Office™ products such as Microsoft® Outlook™ (Forrester Consulting, 2012). Lync™ offers ease-of-use functionality in “click to call” and “click to collaborate” features for the end the user (Davis & Haskins, 2012, p. 3). Agents can quickly collaborate with each other and can also bring specialists into their programming via remote presence. Administration, including District Extension Administrators (DEAs) and Regional Program Leaders (RPLs) use Lync™ to communicate with agents for program planning development, performance appraisals, and district committee meetings.

Greater benefits will be experienced as Lync™ use is increased within an organization (Forrester, 2012). The Microsoft® customer study reported by Forrester Consulting (2012) focused on organizations that had already implemented Lync™. Forrester Consulting (2012) found that the customer participants expressed that their companies received increased benefits and invested in the costs incurred while implementing the Lync™ Server 2010 technology. Benefits included: replacing telephone systems, direct cost savings from web- and teleconferencing, reduced IT and

telephony costs, fewer calls to the help desk, increased user productivity, and travel cost savings (and carbon footprint improvement).

“Overall, IT respondents in this study thought that centralized planning and deployment of Lync™ Server 2010 provided tools that simplify management of the server; thus, increasing the benefits to the organizations and their end users” (Forrester Consulting, 2012, p. 17). However, some Extension users continue to rely on email and telephone even though the tool has been in place for a while. Similarly reported by Davis et al. (2009), some users of Skype™ struggled with audio and video features when trying to attend meetings; possibly due to lack of user ability and/or lack of Internet bandwidth. Information technology (IT) is a powerful tool in the Cooperative Extension Service and; like most organizations, Extension is affected by advances in technology (Mitchell & Gillis, 2006; Tenner, 1996). Therefore, those in management and IT positions must continue to be examples and encourage professionals to use the technology with every opportunity possible. These opportunities include using Lync™ to contact users, assisting in set-up of Lync™ meetings, using instant messaging (IM), and sharing desktops for IT trouble-shooting (Forrester Consulting, 2012). With these challenges to do more with less, Extension has created e-learning tools to reach more people (Davis, et. al, 2009). This is where Microsoft® Lync™ plays a major role in keeping agents connected.

Theoretical Framework

For this study, Microsoft® Lync™ was considered an innovation for communication and collaboration among Extension agents. Previous research on

communication and collaboration tools has used the Unified Theory of Acceptance and Use of Technology (UTAUT) as an appropriate instrument to measure these constructs. Therefore, the theoretical framework was based upon the constructs within this model and seminal theories of Roger's Diffusion of Innovation and Bandura's Self-Efficacy theory.

Unified Theory of Acceptance and Use of Technology (UTAUT) Model

A number of publications highlight specific areas of the user acceptance of information technology study that are supported by the theoretical framework related to the Unified Theory of Acceptance and Use of Technology (UTAUT) model. "The Unified Theory of Acceptance and Use Technology model was originally created to offer business managers help in reaching employees and learning what motivates those employees to accept a new technology" (Venkatesh et al., 2003, p. 426). Moreover, the underlying concept of user acceptance is reaction for information of technology use, intentions for information technology use, and actual information technology use (Venkatesh et al., 2003). Similarly, publications related to technology acceptance models and theories provide support for studies focusing on collaboration tools. These models provide frameworks that can be tailored to fit the needs of various audiences as well as offering various constructs to be utilized for evaluation purposes. Venkatesh et al. (2003), include the following constructs in the UTAUT model: (a) performance expectancy, (b) effort expectancy, (c) social influence, and (d) facilitating conditions. Personal characteristics included in the model are gender, age, experience, and

voluntariness (Venkatesh et al., 2003). A visual is provided in Figure 2.1 indicating constructs, variables, intention, and use.

Figure 2.1 Unified Theory of Acceptance and Use of Technology Model

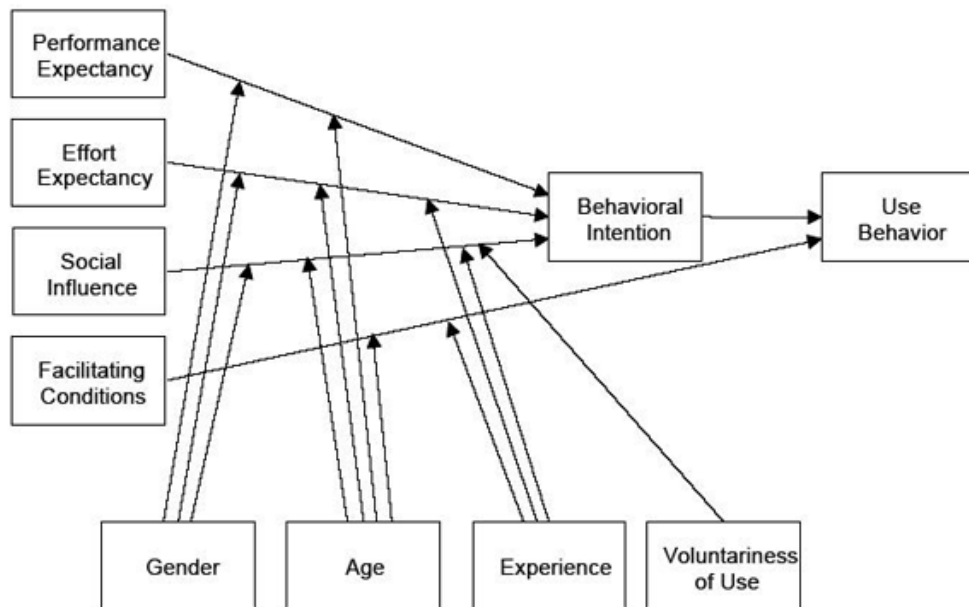


Figure 2.1. The Unified Theory of Acceptance and Use of Technology Model.

Reprinted from “User acceptance of information technology: Toward a unified view,” by V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, 2003, *MIS Quarterly*, 27(3), p. 447. Copyright 2003 by V. Venkatesh.

User Acceptance Models and Theories that comprise the UTAUT Model

UTAUT is a helpful tool aimed at users who may be less likely to accept a new technology (Venkatesh et al., 2003). Additionally, the UTAUT is a model for technology acceptance that outperforms other models (El-Gayar & Moran, 2006). As described by Venkatesh et al., (2003) UTAUT includes components from eight models: the Theory of Reasoned Action (TRA); the Technology Acceptance Model (TAM); the Motivational Model (MM); the Theory of Planned Behavior (TPB); a model combining the TAM and TPB (C-TAM-TPB); the Model of PC Utilization (MPCU); the Innovation Diffusion Theory or better known now as the Diffusion of Innovation Theory (IDT); and the Social Cognitive Theory (SCT). UTAUT has four main constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) (Venkatesh et al., 2003). In addition to these constructs are behavioral intention, self-efficacy (SE), and anxiety. According to Venkatesh et al. (2003), key moderators include: (a) gender, (b) age, (c) voluntariness, and (d) experience. Due to these features, components and constructs are adaptable to a variety of purposes. Moreover, these outstanding models cogitate among two to seven elements of acceptance with 32 constructs located throughout the eight models (Venkatesh et al., 2003). In order to better understand the formulation of UTAUT, one must have a working knowledge of the eight models and theories of acceptance. A visual is provided in Table 2.1 describing constructs of the models and theories for technology acceptance.

Table 2.1*Models and Theories of Individual Acceptance*

Models and Theories	Constructs
Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975) derives from psychology to measure behavioral intention and performance.	Attitude Subjective norm
Technology Acceptance Model (TAM) by Davis (1989) develops new scale with two specific variables to determine user acceptance of technology.	Perceived Usefulness Perceived Ease of Use
Motivational Model (MM) also stems from psychology to explain behavior. Davis et al. (1992) applies this model to the technology adoption and use.	Extrinsic Motivation Intrinsic Motivation
Theory of Planned Behavior (TPB) by Ajzen (1991) extends TRA by including one more variable to determine intention and behavior.	Attitude Subjective norm Perceived Behavioral Control
Combined TAM and TPB (C-TAM-TPB) by Taylor and Todd (1995).	Perceived Usefulness Perceived Ease of Use Attitude Subjective norm Perceived Behavioral Control
Model of PC Utilization (MPCU) by Thompson et al. (1991) is adjusted from the theory of attitudes and behavior by Triandis (1980) to predict PC usage behavior.	Social Factors Affect Perceived Consequences (Complexity, Job-Fit, Long-Term Consequences of Use) Facilitating Conditions Habits
Innovation Diffusion Theory (IDT) by Rogers (1962) is adapted to information systems innovations by Moore and Benbasat (1991). Five attributes from Rogers' model and two additional constructs are identified.	Relative Advantage* Compatibility* Complexity* Observability* Trialability* Image Voluntariness of Use *indicates Roger's constructs.

Table 2.1 Continued

Models and Theories	Constructs
Social Cognitive Theory (SCT) by Bandura (1986) is applied to information systems by Compeau and Higgins (1995) to determine the usage.	Encouragement by Others Others' Use Support Self-Efficacy Performance Outcome Expectations Personal Outcome Expectations Affect Anxiety
Unified Theory of Acceptance and Use of Technology Model (UTAUT) by Venkatesh et al. (2003) integrates above theories and models to measure user intention and usage on technology.	Performance Expectancy Effort Expectancy Attitude toward Using Technology Social Influence Facilitating Conditions Self-Efficacy Anxiety

Table 2.1. Models and Theories of Individual Acceptance. Reprinted from “Empirical validation of Unified Theory of Acceptance and Use of Technology model,” by Thanaporn Sundaravej, 2010, *Journal of Global Information Technology Management*, 13(1), p. 3. Copyright 2010 by T. Sundaravej.

Theory of Reasoned Action (TRA)

The Theory of Reasoned Action is based on the premise that people are generally rational and make logical use of information accessible to them (Fishbein & Ajzen, 1975). This theory focuses on attitude toward behavior and subjective norm constructs in the UTAUT model (Venkatesh, et al., 2003). Additionally, this theory views intention to behave or not behave as an immediate response to the action (Fishbein & Ajzen, 1975). “Drawn from social psychology, TRA is one of the most influential theories of human behavior” (Venkatesh et al., 2003, p. 428). Acceptance of technology over the

past two decades has been considered critical in organizations (Chuttur, 2009; Pontiggia & Virili, 2010). TRA describes one's behavioral tendencies of determining changes and explaining how behavior is shaped based upon attitudes and subjective norms (Fishbein & Ajzen, 1975; Chuttur, 2009). "Understanding the factors that influence an individual's use of IT has been a goal of Information Systems (IS) research since the mid-1970's when organizations and researchers began to find that adoption of new technology was not living up to expectations" (Compeau & Higgins, 1995; Fishbein & Ajzen, 1975). TRA acquired widespread acceptance then and is still in use today in information systems (IS) research to show validity (Javidinia, et al., 2012). According to Compeau and Higgins (1995, p. 189), TRA "maintains that individuals would use computers if they could see positive benefits associated with using them." Technology has changed considerably since the 1970's; however, theories like TRA are still relevant today.

Technology Acceptance Model (TAM)

The second model for review is the Technology Acceptance Model (TAM). This model's three core constructs are: (a) perceived usefulness, (b) perceived ease of use, and (c) subjective norm (Davis, 1989). In his doctoral thesis, Davis (1986) introduced the Technology Acceptance Model (TAM). He suggested motivation can be identified by three factors: perceived ease of use, perceived usefulness, and attitude (Davis, 1986; Chuttur, 2009). As noted by Davis (1989), perceived usefulness is based on the extent to which an individual believes that using a specific system would improve job performance. Perceived ease of use is based upon the extent to which an individual

believes using a certain system would be effortless (Davis, 1989). User acceptance has been critical in conducting research for over 20 years and even though many models have been developed to describe and determine the acceptance and use of technology, the only model that has acquired the most attention in information technology is TAM (Chuttur, 2009). This theory can be used in studies such as the Microsoft® Lync™ study to determine user practice and ease of use.

Motivational Model (MM)

The third model included in UTAUT is the Motivational Model (MM) and consists of extrinsic and intrinsic motivation constructs. Considerable research in psychology has sustained the motivation theory as an approach to explain behavior (Venkatesh et al., 2003). MM combines behavior and cognitive theories to describe extrinsic motivation such as rewards and intrinsic motivation such as goals (Galleta & Zhang, 2006; Vallerand, 1997). Extrinsic motivation occurs when the user wants to participate because of a reward, such as a payment or promotional perk (Davis et al., 1992); while intrinsic motivation occurs because the user desires to participate because of personal satisfaction in engaging in the activity itself, rather than participating for monetary gain. Within IS, applied motivational theory is used to grasp new technology and use (Davis, Bagozzi, & Warshaw, 1992; Venkatesh et al., 2003). As reported in Davis et al. (1992), intentions to utilize PCs in the work environment are determined by perceptions of how useful technology is for enhancing job performance also known as extrinsic motivation and the degree of experiencing pleasure in using computers also known as intrinsic motivation (Chuttur, 2009). Perceived usefulness and perceived

enjoyment contribute to the motivation of technology use (Davis et al., 1992; Igbaria, Baroudi, & Parasuraman, 1996; Williams, 2009).

Theory of Planned Behavior (TPB)

The fourth theory comprising the UTAUT is the Theory of Planned Behavior (TPB). This theory's core constructs are: attitude toward behavior, subjective norm, and perceived behavioral control (Ajzen, 1991). As listed within the UTAUT by Venkatesh et al. (2003), both attitude toward behavior and subjective norm were adapted from the Theory of Reasoned Action (TRA). TRA was expanded to the TPB because the perceived behavioral control construct was included in the theory (Ajzen, 1991). The additional construct was based on the self-efficacy theory from Bandura (1977). Venkatesh, et al. (2003) indicated that TPB has been successful in the comprehension of individual acceptance and usage. In the UTAUT model, social influence and facilitating conditions are related to subjective norm and perceived behavioral control constructs located in TPB (Venkatesh, et al, 2003; Williams, 2009). Ajzen (1991) reviewed several studies that successfully utilized TPB to predict intention and behavior. According to the study conducted by Taylor and Todd (1995, p. 144), "a key objective of much IT research is to assess the value of information technology to an organization and to understand the determinants of that value." They explain the importance of research in assisting organizations to successfully implement and manage IT tools to improve overall performance (Taylor & Todd, 1995).

Combined Technology Acceptance Model and Theory of Planned Behavior (C-TAM-TPB)

The fifth model described in the UTAUT study combines the Technology Acceptance Model and the Theory of Planned Behavior (C-TAM-TPB). Core constructs are: attitude toward behavior and subjective norm as adapted from TRA. The third construct is perceived behavioral control (PBC), which is “the perceived ease or difficulty of performing the behavior” (Ajzen, 1991, p. 8). Mathieson (1991) conducted an experiment comparing TAM with TPB and found PBC is also affected by two beliefs: control beliefs and perceived facilitations (Chuttur, 2009). In the 1991 experiment, Mathieson found that TAM and TPB could predict intention in the participants’ use of computerized spreadsheet software. Mathieson’s (1991) experiment also “showed that both TAM and TPB were suitable to predict system usage” (Chuttur, 2009, p. 12). TAM proved to be a more simplistic model concerning ease of implementation (Mathieson, 1991; Chuttur, 2009); therefore, TAM was considered to be a more appealing model for researchers.

Model of PC Utilization (MPCU)

The sixth model is the Model of PC Utilization (MPCU). Core constructs of this model are job-fit, complexity, long-term consequences, affect toward others, social factors, and facilitating conditions (Venkatesh et al., 2003). Job-fit is defined as using technology and believing it improves job performance based on research by Thompson, Higgins, and Howell (1991). Complexity (Rogers & Shoemaker, 1971) and long-term consequences are defined as those constructs similar to extrinsic motivation. Affect is

explained in relation to feelings, i.e., happiness, euphoria, dislike, disgust; social factors are related to interaction with others; and facilitating conditions are defined as an act that is easy to accomplish (Thompson et al., 1991). MPCU was adapted from Triandis' (1980) model of human behavior to explain acceptance and usage of information technologies (Galletta & Zhang, 2006; Thompson, et al., 1991). As described Galletta and Zhang (2006), "the model distinguishes beliefs about how actions are tied to emotions or future consequences" (p. 388).

Innovation Diffusion Theory (IDT)

The seventh model that composes part of the UTAUT is Innovation Diffusion Theory (IDT). Core constructs of IDT listed in the UTAUT model (Venkatesh et al., 2003) are: relative advantage, ease of use, image, visibility, compatibility, results demonstrability, and voluntariness of use. According to Venkatesh et al. (2003), these core constructs are supported by Rogers (2003) and Moore and Benbasat (1991). "IDT, modified from Rogers (2003) original sociological model is concerned with the spread of new information technology...within an organization" (Galletta & Zhang, 2006, p. 388). According to Rogers (2003), authority innovation decisions are chosen by a small percentage of individuals in an organization who are in a position of power and/or have possession of technical expertise. Additionally, "contingent innovation decisions" are those decisions that can only be made after a previous innovation decision (Rogers, 2003, p. 403); for example, a new medical procedure cannot be adopted or rejected until hospital administration chooses to acquire the necessary equipment for the procedure.

“Moore and Benbasat (1991) modified this theory to study technology acceptance in individuals within an organization” (Galletta & Zhang, 2006, p. 388).

Over a half century ago, the diffusion of innovations theory was created to support a framework to disperse new technologies for adoption (Hubbard & Sandmann, 2007; Rogers, 2003). This body of work provides a theoretical framework for using diffusion of innovation concepts and theories to obtain a deep understanding of factors that influence technology acceptance and use (Rogers, 2003). “These concepts together provide insight into human and social nature, including how new information is accepted (or not accepted) by potential users” (Hubbard & Sandmann, 2007, para. 6). The diffusion of innovations has remained important to Extension professionals and academia as well and continues to be helpful in many professional fields (Hubbard & Sandman, 2007; Rogers, 2003).

As Extension continues to adapt new technologies; administration, IT, and CEAs “can help build a creative and proactive approach...to bring about a desired change” (Mitchell & Gillis, 2009, para. 36) of use and acceptance. Rogers’ (2003) definition of a change agent can be demonstrated by CEAs influencing clients’ decisions in a way that is beneficial to the Texas A&M AgriLife Extension Service. “From its inception, Extension professionals have helped individuals and communities make good decisions that affect current and future conditions (Mitchell & Gillis, 2006, para. 1). Extension agents are considered change agents because they:

Provide a communication link between a resource system with some kind of expertise and a client system...For this type of communication to be effective, the

innovations must be selected to match clients' needs. Feedback from the client system must flow through the change agent to the change agency so that it appropriately adjusts its intervention programs to fit the changing needs of clients. (Rogers, 2003, p. 68)

Rogers (2003) "defined an innovation as an idea, practice, or object perceived as new by an individual or other unit of adoption" (p. 34). The attributes of an innovation are relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Relative advantage is demonstrated as something better than the idea it replaces. Compatibility is determined as consistency in values, experiences, and needs. Complexity is related to understanding use. Trialability is exhibited through experience. Observability is manifested in how others see results (Rogers, 2003). Hence Rogers' (2003) attributes can be adapted for technology acceptance and use (Moore & Benbasat, 1991).

Social Cognitive Theory (SCT)

The eighth theory of the UTAUT model is Social Cognitive Theory (SCT). This theory's constructs are performance outcome expectations, personal outcome expectations, self-efficacy, affect, and anxiety (Compeau & Higgins, 1995; Bandura, 1986). "According to social cognitive theory, growth of intrinsic interest is fostered through affective self-reaction and self-efficacy mechanisms" (Bandura, 1997, p. 214). Compeau and Higgins (1995) adapted SCT for computer utilization and defined performance expectations as connected to job-related outcomes; while personal expectations are part of one's self-esteem and sense of fulfillment. Self-efficacy is

judging an individual's ability to use technology to fulfill a certain task; while affect is linked to finding a particular behavior appealing (Bandura, 1996; Venkatesh, et al., 2003).

“Efficacy beliefs affect thought processes, the level and persistency of motivation, and affective states, all of which are important contributors to the types of performances that are realized” (Bandura, 1997, p. 39). And so, self-efficacy is not concerned with the number of skills one possesses, but with what one believes one can do with those skills in different situations (Bandura, 1997). SCT and the MM can be connected to self-efficacy. Bandura (1997) also said “initial research verified perceived efficacy beliefs contribute to performance rather than just reflecting cognitive skills” (p. 214). In reviewing the MM, the researcher can relate how motivation plays a key role in cultivating intrinsic interest in the user and how it can be done through development of SE (Bandura, 1997); therefore, “affective self-reaction to performance constitutes the source of reward” (p. 219). SE beliefs influence people's thinking, feelings, motivation, and actions (Bandura, 1995, p. 39).

Previous Research using the UTAUT

Since 2003 “there have only been four studies reporting empirically-based comparisons of two or more of the eight models published in the major information systems journals,” as explained by Venkatesh et al. (2003, p. 427). The four studies consist of two voluntary use and two mandatory use investigations. The voluntary use studies were conducted in entertainment and telecomm services and the mandatory use studies were conducted in banking and public administration (Venkatesh, et al., 2003).

”These longitudinal field studies were presented to “individuals being introduced to new technology in the workplace” (p. 437). The eight models were compared using data from the four organizations and similarities were found across the models. Results established a robust foundation for UTAUT and connected three elements of intention to use (PE, EE, and SE) and two elements of usage behavior (BI and FC); therefore, proving a strong case for utilizing UTAUT in technology acceptance and usage studies (Venkatesh et al., 2003).

The theoretical framework described by Venkatesh, Thong, and Xu (2012) focuses on the Unified Theory of Acceptance and Use in Technology (UTAUT) Model created to interpret technology acceptance and use. Moreover, the UTAUT model has been used as a standard to gauge technology usage in consumers. According to Venkatesh et al. (2012), “UTAUT has served as a baseline model since the original publication’s inception and has been applied to a variety of technologies in both organizational and non-organizational setting” (p. 158). This model is fundamental in assessing the use of on-line communication tools. As stated by Venkatesh et al. (2012), “compared to general theories; in more recent years, theories that focus on a specific context and identify relevant predictors and mechanisms are considered to be vital in providing a rich understanding of a focal and meaningful phenomenon” (p. 158). And that is why one of the objectives of the UTAUT is to pay close attention to consumer use.

“In longitudinal field studies of employee technology acceptance, UTAUT explained about 70 percent of the variance in behavioral intention to use a technology

and about 50 percent of the variance in technology acceptance,” (Venkatesh et al., 2012, p. 157); the model also focuses on individual attitudes toward technology and PE of technology. The UTAUT Model is an extensive composite of previous technology research (Venkatesh et al., 2003). El-Gayar and Moran (2006) reported a study of college student’s acceptance of tablet PCs in a mandatory adoption scenario (similar to the Lync™ study scenario) where the modified UTAUT model was found to be successful in predicting the acceptance of the technology.

CHAPTER III

METHODOLOGY

Design Overview

This chapter presents information about the census, research design, survey method, instrumentation, reliability, internal consistency, human subject protection, data collection, and data analysis. The purpose of the study was to learn about Microsoft® Lync™ technology acceptance and use among Extension agents in order to share results with the Texas A&M AgriLife Extension Service administration and the AgriLife Information Technology department. The study's focus was based upon the modified UTAUT instrument constructs for PE and EE. SE, Microsoft® Lync™ features, and personal characteristics of the users were also included in the study. The research objectives are stated as follows:

1. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *performance expectancy*.
2. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *effort expectancy*.
3. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *self-efficacy*.
4. Describe *Microsoft® Lync™ features* most often used by county Extension agents.

5. Describe the influence *demographic variables* have on the acceptance and usage of technology by county Extension agents.

The study used quantitative methods and survey research methodology to collect data in order to acquire information related to the use of Microsoft® Lync™ and its collaboration and communication features. According to Fraenkel and Wallen (2009), the cross-sectional survey “collects information...at just one point in time” and may take a day to a few weeks to collect all data (p. 390). The survey method was important to this study because researchers tend to be interested in large groups of participants concerning a certain topic or issue. Most surveys contain the following characteristics: data compiled from a body of participants to characterize aspects of the population and the way questions are asked to constitute the data of a study. Furthermore, the main purpose of survey research is to explain the personal characteristics of a population and determine how members of that population relate to one or more variables.

This survey design was implemented ALIT to target all county Extension agents (CEAs) in the state of Texas and collect data about the agents’ use of Microsoft® Lync™.

Fraenkel and Wallen (2009) stated, “When an entire population is surveyed, it is called a census” (p. 391). The questionnaire was available to survey participants from January 14-February 4, 2014. Certain individuals such as administrative assistants, paraprofessionals, specialists, and administrators were eliminated from the population due to different job-related functions within the agency. The researcher was interested in receiving data from every county Extension agent within the state of Texas.

Census

According to the Texas A&M AgriLife Extension Service, 636 county Extension agents were employed during January 2014. Agents' gender, Extension experience, position related to program area, extension region, and county population variables were included in the study. During the employment process, Extension administrators generally hire agents for one of four major program areas as related to their job descriptions: agriculture and natural resources (AGNR), family and consumer sciences (FCS), 4-H and youth development (4-H), and horticulture (HORT). Regions are organized by geographic location. Agents are employed to work in counties with various populations. The Lync™ study was designed to take these variables into consideration and determine what role they play in Microsoft® Lync™ usage. Extension added the demographics for its purpose to learn about differences based on those areas of interest. Demographics were categorized as follows:

- Gender: female or male
- Extension experience: 1-5 years, 6-10 years, 11-15 years, 16-20, years, 21-25 years, 26-30 years, or more than 30 years
- Extension position: county Extension agents, administrators, specialists, or support staff members
- Program areas: AGNR, FCS, 4-H, or HORT
- Regions: north, central, east, southeast, southwest, or west
- County population: greater than 250,000, less than 250,000 but greater than 50,000, or less than 50,000

Microsoft® Lync™ features included: (a) instant message, (b) call with audio, (c) video call, (d) recording, (e) sharing, and (f) attaching documents. Each construct has as few questions as deemed appropriate. The primary reason for including only 23 items in the instrument was to keep the survey instrument as brief as possible. The instrument had to be brief in order to receive a good response rate from CEAs, but still answer the research questions. The AgriLife IT Manager for Extension included the following questions: Microsoft® Lync™ use is important to AgriLife Extension and Microsoft® Lync™ use is not important to AgriLife Extension. Those questions were asked as a simple check that respondents were reading the questions correctly, not just selecting all answers in one particular rating such as all *Strongly Agree* (7) or all *Strongly Disagree* (1); and more importantly, Extension wanted to ask two questions to determine the agents' perception of "importance" – that being critical to understanding all the other responses (J. Segers, personal communication, July 30, 2014). A reliability check on the items was not performed because the AgriLife IT Manager for Extension would have included the two questions even if the analysis proved they were not needed.

Instrumentation

A modified questionnaire was designed based upon the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The questionnaire collected data regarding PE, EE, and SE constructs. The Teacher Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) was utilized to examine the self-efficacy construct in Extension agents' usage of Microsoft® Lync™. Bandura's (1993) self-efficacy theory was used to create the scale (Strong, Irby, & Dooley, 2013; Tschannen-Moran & Hoy, 2001). The

instrument was based on summated rating scales for all constructs and Lync™ features. Summated rating scales were utilized to combine multiple items (Spector, 1992); four characteristics that make up scales include: (a) multiple items, (b) quantitative measures, (c) no right answers, and (d) statements offered to respondents to give ratings that best explain their responses. As reported by Spector (1992), summated rating scales generally provide between four and seven response choices. A five-point summated scale was used for self-efficacy: *1 = not at all, 2 = very little, 3 = somewhat, 4 = quite a bit, and 5 = a great deal*. Internal consistency for the SE construct was determined *ex post facto* with a Cronbach's alpha reliability coefficient of .96, judged acceptable in this study (Fraenkel and Wallen, 2009; Cronbach, 1951).

The UTAUT scale (Venkatesh et al., 2003) assesses the technology choices of the user. PE and EE constructs from the UTAUT model were investigated in this study. Extension agents' preference of Lync™ was measured on a seven-point summated scale: *1 = strongly disagree, 2 = moderately disagree, 3 = somewhat disagree, 4 = neutral (neither disagree nor agree), 5 = somewhat agree, 6 = moderately agree, and 7 = strongly agree* (Venkatesh et al., 2003). PE and EE constructs were calculated *ex post facto*. PE received a reliability coefficient of .92 and EE received a Cronbach's alpha reliability coefficient of .91 in the Microsoft® Lync™ study. According to Cronbach (1951), SE, EE, and PE had an internal consistency within these constructs and were deemed reliable. Internal consistency was also determined acceptable to address the study's research objectives (Strong, Irby, & Dooley, 2013).

The survey instrument was administered on-line using Qualtrics® On-line Surveys and ensured anonymity of the agents and their responses. “Qualtrics® is a sophisticated on-line survey software enabling users to create and conduct on-line questionnaires for research purposes” (Qualtrics® On-line Surveys, 2013). Secure Sockets Layer (SSL) encryption is used in Qualtrics® for secure transmission of data. Therefore, names were not connected to any collected data.

Qualtrics® provides the following features relating to analysis:

Graphs, filter data, drill downs, response tables, survey respondent overview, and question statistics tables; while reporting features include export reports, email scheduled reports, and export individual responses. Data analysis options include download data, cross tabulations, cross tabulations analysis, conjoint analysis, scoring and grading, and other options such as recoding choice values and variable labels, excluding items from analysis, and renaming question labels for easier reference. (Qualtrics® On-line Surveys, 2013, para. 1)

An on-line questionnaire was appropriate for this study because it offered self-administration and anonymous participation. Respondents were able to complete the survey instrument when it was convenient for their work schedules while remaining anonymous. Agents spend most of their days and a substantial amount of their evenings and weekends interacting with clientele, responding to phone calls and email, preparing for programming, preparing reports, and maintaining accountability records. Thus, it is important to offer them an on-line survey instrument conducive to their busy schedules. Furthermore, guidelines for creating surveys located on the Qualtrics® blog, Q

Insights™, explains simplicity as the first step in creating successful surveys. A good upper-limit for most surveys is 15 minutes because after that amount of time, the survey responses risk drop out, loss of attention, and frustration (Q Insights™, 2014).

According to Dillman Smyth, and Christian (2009), convenience and anonymity can increase response. Dillman's tailored design approach provides strategies for increasing response rate, including user friendly questionnaires and multiple reminder notices (Dillman et al., 2009). The on-line survey method also allows researchers to collect data in a short amount of time. Additionally, surveys are useful for acquiring data from large populations. The purpose of the survey method was to generate quantitative data about agents' SE, PE, and EE to be statistically analyzed. The cross-sectional survey method coordinates well with the on-line questionnaire method because the researcher can receive data at a single point in time (Fraenkel & Wallen, 2009), saving time and resources. According to Fraenkel and Wallen (2009), cross-sectional design requires less time and dedication from the respondents than a longitudinal design.

Data Collection

Institutional Review Board (IRB) approval was sought and obtained before data collection began (Appendix A). The Collaborative Institutional Training Initiative (CITI) training modules were also completed (Appendix B). The director of the Texas A&M AgriLife Extension Service sent an email cover letter to agents to inform them of the study's purpose and to ask for cooperation in participating (Appendix C). This message was emailed to all agents within the Microsoft® Exchange™ distribution list found within the Outlook™ global address list of the Texas A&M AgriLife Extension

Service. Agents were contacted by email through the survey instrument announcement cover letter sent in an e-mail message with the survey link included. The e-mail message described the questionnaire's purpose and procedures. When agents followed the Qualtrics® web link, they could access the on-line questionnaire (Appendix D). The ALIT manager for RITS sent the researcher an email letter explaining how the names and addresses of CEAs were captured in the contents of the Outlook® distribution list called EXT – CEA ALL. The total number of entries was 636 CEAs. The ALIT manager described the following scenario: This number represents the total number of potential responses from CEAs. This method will be used to determine percentage response rate. For example: if 450 responses are received, the response rate will be $450 / 636 * 100 = 70.56\%$ (J. Segers, personal communication, January 15, 2014) (Appendix E). The follow-up recruitment e-mail message was sent one week later (Appendix F). On the following week, a final recruitment e-mail message was sent (Appendix G). This process was based on the tailored design method (Dillman et al., 2009).

Data collection was completed within three weeks. The agents did not receive any physical compensation for their participation. The research did not pose any more than minimal risk to participants beyond that of everyday life and; therefore, no liability plan was offered. Early and late respondents were compared to assess the potential of nonresponse error (Lindner, Murphy, & Briers, 2001). According to Fraenkel and Wallen (2009), nonresponse means there is a lack of response to survey items. Reasons for nonresponse may be due to lack of interest or knowledge, forgetfulness, or

unwillingness to participate (Fraenkel & Wallen, 2009). However, “very simple demographic questions usually have almost no nonresponse” (Fraenkel & Wallen, 2009, 403). Therefore; early and late respondents had no bearing on significant differences within the dataset.

Data Analysis

For this research study, PE, EE, and SE were considered the constructs of interest. BI and FC were not included because Microsoft® Lync™ was mandated by Extension administrators and; thus, these constructs were not appropriate constructs for the study. Descriptive statistics (mean and standard deviation) were calculated for these constructs to determine CEAs’ agreement of usage and acceptance of Microsoft® Lync™. Demographics collected during the Microsoft® Lync™ study were used to determine if there were significant differences between the personal characteristics of the participants and the UTAUT constructs. Personal characteristic variables included gender, Extension region, Extension program area, Extension experience, and size of county population. Mean, standard deviation, t-tests, and ANOVA were used for this portion of the survey results. According to Fraenkel and Wallen (2009), “the mean is determined by adding all scores and dividing the sum by the total number of scores” (p. G-5). The standard deviation (SD) is a number that shows the spread or variance (Fraenkel & Wallen, 2009). A t-test is used to determine the significance of a variable when there are only two groups assessed. Analysis of Variance (ANOVA) is used to determine the significance of variables when there are more than two groups to assess.

A visual is provided in Figure 3.1 indicating constructs, variables, and usage among CEAs who participated in the Microsoft® Lync™ study.

Figure 3.1 Microsoft® Lync™ Use among County Extension Agents in the Texas A&M AgriLife Extension Services.

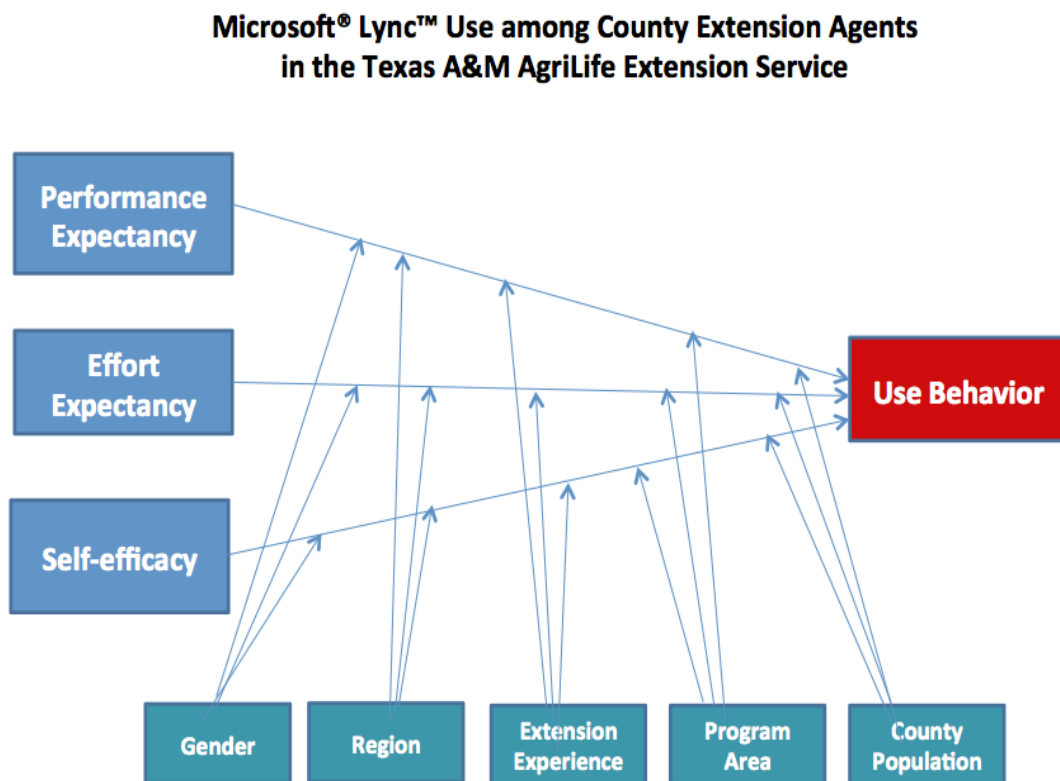


Figure 3.1. Microsoft® Lync™ Use among County Extension Agents in the Texas A&M AgriLife Extension Service. Adapted from “User acceptance of information technology: Toward a unified view” by Venkatesh, Morris, Davis, & Davis, 2003, p. 447. Copyright 2003 by Viswanath Venkatesh.

Ethical Considerations

As stated by Fraenkel and Wallen (2009), the term ethics refers to questions of right and wrong. When researchers think about ethics, they must ask themselves if it is “right to conduct a particular study or carry out certain procedures” (p. 53). Participation was voluntary and there was no penalty for not participating. All responses were anonymous. Statement of subjectivity: the researcher is a regional information technology specialist employed by the AgriLife Information Technology department. Major responsibility areas are spent supporting and consulting agents in computer workstation/technical assistance, maintaining administrative tasks, and initiating and completing technical projects (AgriLife Information Technology Department, Texas A&M AgriLife System, 2012).

The IRB proposal was submitted and approved (Appendix A). IRB is “a research review board of all institutions receiving federal research funds” (Fraenkel & Wallen, 2009, p. G-4). The researcher completed the CITI training and refresher training (Appendix B). CITI “promotes the public's trust in the research enterprise by providing high quality, peer reviewed, web based, research education materials to enhance the integrity and professionalism of investigators and staff conducting research” (CITI Program Mission Statement, 2012, para. 1).

CHAPTER IV

FINDINGS

Results from the study are detailed in this chapter and reported by research objective. Descriptions of the instrument, constructs, Microsoft® Lync™ features, and variables are also explained. The purpose of this study was to describe the use and acceptance of Microsoft® Lync™ among Texas A&M AgriLife Extension agents. A survey research design was used with an on-line questionnaire containing 23 items. PE included four questions, EE included four questions, and SE included four questions. Six questions were asked regarding the Microsoft® Lync™ features while five demographic questions were included.

Summary of demographics:

- Gender
 - 185 Females
 - 155 Males
- Extension experience
 - 93 respondents indicated 1-5 years of experience
 - 70 respondents indicated 6-10 years of experience
 - 60 respondents indicated 11-15 years of experience
 - 45 respondents indicated 16-20 years of experience
 - 28 respondents indicated 21-25 years of experience
 - 21 respondents indicated 26-30 years of experience

- 23 respondents indicated 30 years or more of experience
- Program areas
 - 152 AGNR Agents
 - 119 FCS Agents
 - 53 4-H Agents
 - 16 HORT Agents
- Regions
 - 44 agents responded from the north region
 - 49 agents responded from the southeast region
 - 74 agents responded from the east region
 - 61 agents responded from the central region
 - 59 agents responded from the south region
 - 44 agents responded from the west region
- County population
 - 92 agents responded from counties greater than 250,000
 - 107 agents responded from counties less than 250,000 but greater than 50,000
 - 141 agents responded from less than 50,000
- Position (this demographic was included to indicate 25 responses that should not have been included in the study, Appendix D)
 - 340 county Extension agents
 - 2 Specialists

- 7 Administrators
- 3 Support Staff members
- 0 Other

The study was comprised of 636 CEAs (census total) employed during January 2014. There were 340 respondents who completed the on-line questionnaire with a 53% response rate. According to the Qualtrics® data, there was a 2% dropout rate. A dropout rate occurs when a respondent simply quits taking the survey (Qualtrics®, 2013). There were 25 responses removed due to the instrument email letter being sent to non-agent positions. E-mail notices were sent weekly to encourage agents to respond to the questionnaire during the three-week period between January 14 and February 4, 2014 (Dillman et al., 2009). The findings are reported by research objective.

1. Describe the acceptance and usage of Microsoft® Lync™ by county

Extension agents based upon the construct of performance expectancy.

Participants were asked four questions to determine performance expectancy: ease of use, quick accomplishments of tasks, clear and understandable interaction, and how the users liked working in Lync™. The on-line questionnaire used a seven-point summated scale (1 = *strongly disagree*, 2 = *moderately disagree*, 3 = *somewhat disagree*, 4 = *neutral (neither disagree nor agree)*, 5 = *somewhat agree*, 6 = *moderately agree*, and 7 = *strongly agree*) (Venkatesh et al., 2003). 340 respondents answered these items collected from the census (636 CEAs). Table 4.1 illustrates findings from objective one. The highest scoring item was “I find Microsoft® Lync™ easy to use”.

Table 4.1*Descriptive Statistics for Performance Expectancy Items (340 respondents)*

Statement	<i>M</i>	<i>SD</i>
I find Microsoft® Lync™ easy to use.	5.73	1.35
I like working in Microsoft® Lync™.	5.44	1.55
Using Microsoft® Lync™ enables me to accomplish tasks more quickly.	5.36	1.55
My interaction with Microsoft® Lync™ is clear and understandable.	5.36	1.40

Note. Scale: 1 = strongly disagree and 7 = strongly agree

Overall, the respondents were between somewhat agree and moderately agree for performance expectancy.

2. Describe the acceptance and usage of Microsoft® Lync™ by county

Extension agents based upon the construct of effort expectancy.

Participants were asked four questions to determine effort expectancy: importance to Texas A&M AgriLife Extension and primary use options of one-to-one or group conversations (meetings). There was a negative statement about CEAs use not being *important* to ensure individuals were correctly reading the questionnaire. A seven-point scale modified from (Venkatesh et al., 2003) was used to investigate the research objectives with anchors: (1 = *strongly disagree*, 2 = *moderately disagree*, 3 = *somewhat disagree*, 4 = *neutral (neither disagree nor agree)*, 5 = *somewhat agree*, 6 = *moderately agree*, and 7 = *strongly agree*). There were 340 responses to these items. Table 4.2

illustrates findings from objective two. The highest scoring item was “Microsoft® Lync™ use is important to Texas A&M AgriLife Extension.”

Table 4.2

Descriptive Statistics for Effort Expectancy Items (340 respondents)

Statement	<i>M</i>	<i>SD</i>
Microsoft® Lync™ use is important to AgriLife Extension.	5.99	1.21
I use Microsoft® Lync™ most often for one-to-one conversations.	5.34	1.85
I use Microsoft® Lync™ most often for group conversations.	5.09	1.61
Microsoft® Lync™ use is not important to AgriLife Extension.	2.08	1.36

Note. Scale: 1 = strongly disagree and 7 = strongly agree

Overall, the respondents were between somewhat agree and moderately agree for the construct of effort expectancy, with the negative statement trending at moderately disagree.

3. Describe the acceptance and usage of Microsoft® Lync™ by county

Extension agents based upon the construct of self-efficacy.

Participants were asked four questions to determine self-efficacy, which is the belief in one’s capability to succeed in different situations. Questions focused on proficiency, motivation to learn about features, how Microsoft® Lync™ assists you in daily work, and communicating more effectively. The questionnaire used a five-point scale (1 = *not at all*, 2 = *very little*, 3 = *somewhat*, 4 = *quite a bit*, 5 = *a great deal*).

There were 340 responses to these items. Table 4.3 illustrates findings from objective three. The highest scoring item was “How much does Microsoft® Lync™ assist you in communicating more effectively”.

Table 4.3

Descriptive Statistics for Self-Efficacy Items (340 respondents)

Question	<i>M</i>	<i>SD</i>
How much does Microsoft® Lync™ assist you in communicating more effectively?	3.53	1.12
How proficient are you in using Microsoft® Lync™?	3.52	.79
How motivated are you to use Microsoft® Lync™ to learn more about its features?	3.40	.94
How much does Microsoft® Lync™ enhance your daily work?	3.18	1.05

Note. Scale: 1 = strongly disagree and 7 = strongly agree

Overall, the respondents were between somewhat agree and moderately agree for the construct of self-efficacy.

4. Describe Microsoft® Lync™ features most often used by county Extension agents.

Objective four was used to measure Microsoft® Lync™ features such as voice, video, messaging, and presence. The questionnaire used a seven-point scale (1 = *completely uncomfortable*, 2 = *uncomfortable*, 3 = *somewhat uncomfortable*, 4 = *not applicable (has not used feature(s))*, 5 = *somewhat uncomfortable*, and 6 = *comfortable*, and 7 = *completely comfortable*). There were fewer responses to these items as indicated

in Table 4.4. The highest scoring item was “How comfortable are you using the instant message (text chat feature within Microsoft® Lync™”.

Table 4.4

Descriptive Statistics for Lync™ Features

Question	<i>n</i>	<i>M</i>	<i>SD</i>
How comfortable are you using instant message?	326	5.08	1.16
How comfortable are you in using the call with audio?	326	4.96	1.11
How comfortable in using the video call?	314	4.50	1.25
How comfortable are you in using the sharing feature?	208	3.66	1.51
How comfortable are you in using attaching documents feature?	188	3.61	1.62
How comfortable are you in using the recording feature?	149	3.14	1.47

Note. Scale: 1 = strongly disagree and 7 = strongly agree

It is apparent by the drop in responses that participants were having survey fatigue, yet there were enough responses to complete the descriptive analysis. The respondents had a wider range from somewhat uncomfortable to somewhat comfortable in using Microsoft® Lync™ features.

5. Describe the influence demographic variables have on the acceptance and usage of technology by county Extension agents.

The survey instrument asks participants for their gender, Extension region, Extension experience, program area, and population of county. The analysis of variance indicated that there were no differences between groups for the demographic variables of Extension region, Extension experience, and county population. There were only significant differences based upon gender and program area in both performance expectancy and effort expectancy. Using a t-test to determine differences based upon gender, eight items were significant. Table 4.5 illustrates these findings. The highest mean difference was for the statement “Microsoft® Lync™ is important to Texas A&M AgriLife Extension” with females scoring significantly higher than males.

Table 4.5

Significant T-test Results in the Acceptance and Use of Lync™ by Gender

Item	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	<i>f</i>	<i>p</i>
Microsoft® Lync™ is important to A&M AgriLife Extension.	Female	185	6.13	1.25	0.97*	.02
	Male	155	5.83	1.16		
I like working in Microsoft® Lync™.	Female	185	5.60	1.58	.074*	.04
	Male	155	5.26	1.50		
I use Microsoft® Lync™ most often for group conversations.	Female	185	5.25	1.55	.176*	.05
	Male	155	4.90	1.67		
How comfortable are you in using IM feature within Microsoft® Lync™?	Female	181	5.19	1.21	1.69*	.05
	Male	145	4.94	1.09		
How much does Microsoft® Lync™ assist you in communicating more effectively?	Female	185	3.65	1.13	.209*	.03
	Male	155	3.39	1.09		

Table 4.5 Continued

Item	Gender	<i>n</i>	<i>M</i>	<i>SD</i>	<i>f</i>	<i>p</i>
How proficient are you in using Microsoft® Lync™?	Female	185	3.61	.82	1.52*	.03
	Male	155	3.41	.75		
How motivated are you to use Microsoft® Lync™ to learn more about its features?	Female	185	3.56	.94	3.81*	.00
	Male	155	3.21	.90		
How much does Microsoft® Lync™ enhance your daily work?	Female	185	3.33	1.06	3.25*	.00
	Male	155	3.01	1.01		

Note. Scale: 1 = strongly disagree and 7 = strongly agree

Note. * $p < .05$.

Overall, females had more positive perceptions about the acceptance and use of Microsoft® Lync™.

The second demographic value that demonstrated significant differences was 4-H and Youth Development (4-H), Family and Consumer Sciences (FCS), Horticulture (HORT), and Agriculture and Natural Resources (AGNR) program areas. To determine the means of more than two groups, ANOVA was used. The number of responses for each item along with the mean, standard deviation, *f*-value, and significance are provided in Table 4.6.

Table 4.6

Significant Analysis of Variance Tests in the Acceptance and Use of Lync™ by Program Area

Question	Program Area	<i>n</i>	<i>M</i>	<i>SD</i>	<i>f</i>	<i>p</i>
Microsoft® Lync™ use is important to Texas A&M AgriLife Extension.	FCS	53	6.28	1.12	5.06*	.002
	4-H	119	6.15	1.04		
	HORT	16	5.75	1.65		
	AGNR	152	5.74	1.26		
I like working in Microsoft® Lync™.	4-H	53	5.70	1.38	2.88*	.036
	FCS	119	5.68	1.52		
	AGNR	152	5.20	1.60		
	HORT	16	5.19	1.94		
How comfortable are you in using Microsoft® Lync™ features? Attaching documents	4-H	22	4.45	1.22	3.74*	.012
	HORT	10	4.20	1.90		
	AGNR	92	3.60	1.51		
	FCS	64	3.23	1.74		
How proficient are you in using Microsoft Lync™?	HORT	16	3.88	.81	4.50*	.004
	4-H	53	3.75	.73		
	FCS	119	3.55	.82		
	AGNR	152	3.38	.76		
How much does Microsoft® Lync™ assist you in communicating more effectively?	4-H	53	3.77	1.10	3.60*	.014
	FCS	119	3.70	1.10		
	AGNR	152	3.34	1.13		
	HORT	16	3.25	1.10		
How motivated are you to use Microsoft® Lync™?	4-H	53	3.57	.84	4.12*	.007
	FCS	119	3.56	.87		
	HORT	16	3.50	1.16		
	AGNR	152	3.20	.97		

Note. Scale: 1 = strongly disagree and 7 = strongly agree

Note. * $p < .05$.

Note. 4-H agents had significantly higher means on the items regarding 4-H – 4-H and Youth Development; FCS – Family and Consumer Sciences; AGNR – Agriculture and Natural Resources; HORT – Horticulture.

The second demographic value that demonstrated significant differences was 4-H and Youth Development (4-H), Family and Consumer Sciences (FCS), Horticulture (HORT), and Agriculture and Natural Resources (AGNR) program areas as seen in Table 4.6. 4-H Agents had significantly higher means on the items regarding Microsoft® Lync™ usage being important to AgriLife Extension, liking to work with Microsoft® Lync™, communicating effectively using Microsoft® Lync™, and motivation to use Microsoft® Lync™ to learn more about its features. On the item “How proficient are you in using Microsoft® Lync™?” the Horticulture (HORT) program area had the highest mean. This subgroup is proportionately a smaller subset of county Extension agents and thus has a smaller number of respondents. FCS agents also scored relatively high in the program area demographic.

CHAPTER V

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

This chapter will give meaning to and expand upon findings related to the existing literature. The results from the Microsoft® Lync™ study will be summarized by research objectives, PE, EE, and SE constructs, Lync features used by CEAs, and reduced costs for Extension. Texas A&M AgriLife Extension Service is primarily comprised of salaries for employees. The Extension Service continues to do more with fewer resources. So the implementation of a unified technology like Microsoft® Lync™ has the potential to reduce those expenditures and improve opportunities for communication and collaboration across the Extension Service. In studies where products like Microsoft® Lync™ are used, information can be utilized for future research within educational organizations (Arnold, 2007). This chapter will also provide direction for practice and future studies.

The purpose of the Microsoft® Lync™ study was to learn about Microsoft® Lync™ technology acceptance and use among Extension professionals in order to share the results with the Texas A&M AgriLife Extension Service administration and the AgriLife Information Technology department. The study's focus was based upon the modified UTAUT instrument. Due to advancing technology, CEAs collaborate differently with each other and connect to clientele in new ways. Since Microsoft® Lync™ connects users in new ways enabling them to reach others in various locations,

less travel costs will be incurred by Extension and less time will be spent traveling. The research objectives were:

1. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *performance expectancy*.
2. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *effort expectancy*.
3. Describe the acceptance and usage of Microsoft® Lync™ by county Extension agents based upon the construct of *self-efficacy*.
4. Describe *Microsoft® Lync™ features* most often used by county Extension agents.
5. Describe the influence *demographic variables* have on the acceptance and usage of technology by county Extension agents.

The theoretical framework included Venkatesh's Unified Theory of Acceptance and Use of Technology model (2003), Roger's attributes of innovation (2003), and Bandura's Self Efficacy theory (1993). For this study, Microsoft® Lync™ was considered an innovation for communication and collaboration among Extension agents. Previous research on communication and collaboration tools has used the Unified Theory of Acceptance and Use of Technology (UTAUT) as an appropriate instrument to measure these constructs. Survey research design was used with a modified questionnaire containing 23 items. Methodology included the following items: design overview; census, instrumentation; data collection; data analysis; and ethical considerations. The study utilized survey research methodology to collect data in order

to acquire information related to the use of Microsoft® Lync™ and its collaboration and communication features.

There were 636 county Extension agents that comprised the target population with a 53% response rate of 340 agents participating. The survey instrument was administered on-line using Qualtrics® On-line Surveys. The use of this on-line survey site ensured anonymity of the agents and their responses. Descriptive statistics (mean and standard deviation) were run on these constructs to determine county Extension Agents' agreement of usage and acceptance of Microsoft Lync™. Demographics collected during the Microsoft® Lync™ study were used to determine if there were significant differences of means. These personal characteristic variables included gender, Extension region, agent program area, Extension experience, position, and size of county population. Mean, standard deviation, and t-tests/ANOVA were used for this portion of the survey results.

Conclusions and Discussion

For **Research Objective 1** the respondents were asked about their *performance expectancy*. Respondents typically agreed that the software was easy to use, tasks were quickly accomplished, interactions were understandable, and they liked using the program. It can be concluded that Microsoft® Lync™ is an effective communication and collaboration tool for Texas AgriLife Extension. Based upon Roger's (2003) diffusion of innovations theory, ease of use and flexibility of use in the agents' own offices is a relative advantage because it saves time and money in travel and enhances communication across the state to help agents better perform their jobs and reach clients.

Based upon the seminal work of Rogers, saving time on tasks is compatible with Extension's requirements for accountability and interactions that are easily achieved and understandably allowed for observability and trialability of the software.

For **Research Objective 2** the respondents were asked about their *effort expectancy*. County Extension agents agreed Microsoft® Lync™ use was important to Texas A&M AgriLife Extension and primary use of one-to-one and group conversations was also deemed important. Agents' responses to the negative question about Microsoft® Lync™ not being important to the agency indicated that they understood the items included in the Microsoft® Lync™ questionnaire. According to Venkatesh et al. (2003), basic concepts of user acceptance are related to the users' reactions, intentions, and actual use of information technology. These basic concepts can be seen in the results of the study where agents indicated Microsoft® Lync™ is: important to AgriLife Extension and most often utilized for one-to-one conversation. Therefore, trialability can be used in an experimental environment like Lync™ because users can practice and participate in one-to-one and group conversations to better learn to use the technology. Observability also plays a role in Microsoft® Lync™ because other users can see visible results when using meetings to communicate with other agents. Microsoft® Lync™ is perceived as important to Extension and that importance is conveyed to the end-users, the agents. Thus, Microsoft® Lync™ appears to be adopted through the social system (Rogers, 2003).

For **Research Objective 3** the respondents were asked about their *self-efficacy*. Respondents generally agreed Microsoft® Lync™ assists them in communicating more

effectively and they are proficient and motivated to learn more about its features. They also agreed it enhanced their daily work. As Bandura (1997) stated, personal standards of self-efficacy can enhance interest in activities. This is evident in Lync™ users because they indicated that they generally agree with items corresponding with the self-efficacy construct. Lync™ provides various levels of task demands that agents can utilize when learning to use the communication tool. Moreover, self-efficacy is concerned with what one believes one can do with their skills in different situations (Bandura, 1997).

For **Research Objective 4** the survey participants acknowledged they were comfortable using instant message (IM) and call with audio *Microsoft® Lync™ features*. Agents were asked to rate their use of all six Lync™ features described within the survey instrument: instant message, call with audio, video call, recording, sharing and attaching documents. Some agents are not as comfortable in using video, recording, sharing, or attaching documents. Unified communications (UC) allows users to access all modes of communication with voice, video, messaging, and presence (Forrester Consulting, 2012). Extension employees continue to use distance education and communication technology to enhance performance and educational practices. Results from the Microsoft® Lync™ study indicate agents need improvement using the following features: video calls, sharing documents (PowerPoint™ presentations, desktop, etc.), recording meetings, and attaching documents. Extension encourages CEAs to utilize new technology in order to: improve job performance, reduce expenses, save time and resources, and enhance educational programming. According to

eLearning Industry, corporations readily use on-line communication and collaboration tools for adult education and training (Pappas, 2013). Extension should continue to provide employees with emerging technology opportunities to enhance the agents' job performance, professional development, and technical skills. CEAs can take advantage of technology training that is readily available to them. ALIT provides training opportunities such as Microsoft® Office Suite, Word Press™ websites, and Audacity® recording software to improve agents' technical skills. Recently, Texas A&M Extension Director Steele shared the following information about TrainTraq: "TrainTraq Teaches More than You Know -- If you associate TrainTraq with mandatory training only, then it's time for you to gain additional insight! Besides training that employees must complete on a recurring cycle, TrainTraq provides easy, convenient, on-line access to a wide variety of elective courses. In fact, The Texas A&M University System offers more than 600 on-line and in-classroom courses through TrainTraq, where you can also register and view" (D. Steele, personal communication, October 17, 2014). This is another professional development opportunity for agents to improve their skills.

For **Research Objective 5** the respondents were asked demographic questions. Respondents were asked to indicate gender, experience, region, position, program area, and county population. In summation of the data, females (54%, $n = 185$) composed a larger portion of the sample compared to males (46%, $n = 155$). Females scored significantly higher on a number of questions including: importance of the communication tool, liked using the tool, used group conversations, found the tool helpful in assisting with effective communication, and indicated proficiency, motivation,

and enhancement of daily work in Lync™. Venkatesh et al. (2003) indicated EE to be most salient for women, especially older women with little experience in technology. Females in the Lync™ study scored highest on: two of four EE items; one of four PE items, and four of four SE items. “The effort expectancy construct within each model is significant in both voluntary and mandatory usage contexts” (Venkatesh et al., 2003, p. 450). Venkatesh and Morris (2000) suggest EE is more important for women than men according to research conducted by Bern and Allen (1974) and Bozionelos (1996). Furthermore, gender representation based upon the Microsoft® Lync™ study showed 54% of females responded to the questionnaire. Since FCS agents make up the majority of female representation in the Texas A&M AgriLife Extension Service, the results of the instrument are consistent with studies regarding EE.

The second demographic characteristic; program areas, demonstrated significant differences, especially in 4-H and Youth Development (4-H); Family & Consumer Sciences (FCS); and Horticulture (HORT. 4-H agents had significantly higher means on the items regarding Microsoft® Lync™ usage being important to A&M AgriLife Extension, liking to work with Lync™, communicating effectively using Lync™, and motivation to use Lync™ to learn more about its features. They tend to be more willing to embrace technology and change due to the nature of their job description and the emphasis placed on experiential learning with youth. On the item “How proficient are you in using Microsoft® Lync™” the HORT program area had the highest mean. This subgroup is proportionately a smaller subset of county Extension agents and thus has a smaller number of respondents. HORT agents tend to be innovators or early adopters since

there are so few of them in the state, they may depend on technology to enhance job performance. Moreover, UTAUT can provide a useful tool for managers looking to improve technology use (Venkatesh, et al., 2003). UTAUT can help administrators and the ALIT department better understand user acceptance. According to Venkatesh et al. (2003), design interventions such as training and marketing can be utilized to improve future studies. Targeted populations “may be less inclined to adopt and use new systems” (Venkatesh, et al., 2003, p. 426). Extension should review the results from the Lync™ study and the UTAUT model. The UTAUT journal article makes recommendations for future studies including the development for a deeper understanding of: (a) major constructs and (b) organizational outcomes related to new technology use (Venkatesh, et al., 2003). Technology recommendations for future research and practice are detailed in the following section.

Recommendations

Research

Recommendations are provided in an effort to strengthen Microsoft® Lync™ usage among CEAs and encourage use of Microsoft® Lync™ features: making video calls; sharing on-screen documents; recording Lync™ meetings; and attaching documents. Future research should be conducted to explore gender and age in more detail. Specifically, looking into the reason(s) why women scored higher on the instrument overall. One of the reasons may be women are by nature more communicative. Females had more positive perceptions about the acceptance and use of Microsoft® Lync™ and comprised a larger percentage of the respondents. They scored

significantly higher on a number of questions including those SE questions. Men scored highest on PE items as supported by Minton and Schneider (1980) indicating differences in gender where males tend to be more oriented toward tasks.

4-H agents scored higher on SE items and Microsoft® Lync™ features.

Additional research would be valuable in learning what skills these agents acquired to make them most successful in using technology. It would be important to see if working with younger clients exposes those agents to more technology. Age was not collected in the instrument. It could be beneficial to know if that variable would have made a difference, especially in looking at gender roles and Extension experience. This study only targeted county Extension agents, but it could be extended to support staff.

Administrative assistants tend to have different needs at times. They were not provided Microsoft® LifeCam™ video cameras like the agents were and some do not have access to headphones or external microphones. An additional study could bring to light the need for office managers, administrative assistants, and those in paraprofessional roles to use video cameras to enhance job performance.

Qualitative studies could be conducted to further investigate technology tools such as Lync™. Three optional open-ended questions could be added to a future instrument. The section could be called “Improving your Technology Experience.” The following questions could be available for participants to provide their responses:

- How is technology or Internet connectivity limited in your office?
- What could be improved to enhance your use of technology tools?
- How do you use technology tools in your daily work?

Qualitative designs are valuable in gaining perspective into one's feelings, thoughts, and emotions (Strauss & Corbin, 1998); this design method can be utilized to obtain responses not found in other methods. Future research could include a purposive sample of administrative assistants or specialists selected through the use of the snowball sample. For example: six IT specialists could propose three types of users for the study. Specialists could identify one basic user, one intermediate user, and one advanced user per region with a sample consisting of 15 users. The scope of the study could focus on three types of computer users identified. To assist RITs in determining user skills, they could utilize Microsoft™ guidelines for levels of competency. Microsoft® has created skill levels for each of its software products: Word™, Excel™, Access™, and PowerPoint™. Moreover, The Maryland Technology Literacy Standards for Students companion document provides guidance for computer skills that students should possess: (a) basic, (b) intermediate, and (c) proficient (Maryland Technology Literacy Standards for Students Companion, 2012, para. 1) and RITS could also use this resource as a guide.

Individual participant interviews could be conducted via the Microsoft® Lync™ collaboration software. Several features of Lync™ could be utilized while conducting interviews by using: the phone call and video features, the recording feature to obtain audio files of interviews, and the sharing feature to present visible questions to the audience. Each session could last approximately 20-30 minutes. As stated by Fraenkel & Wallen (2009), the term ethics refers to questions of right and wrong. To ensure member checking, a confidentiality statement could be included with the interview

questions: your information will be collected, compiled and returned to you in an email to confirm the correct data. As in any qualitative study, trustworthiness, credibility, transferability, dependability, and confirmability should be included (Merriam, 2009).

Practice

Based on this study, a majority of the 4-H, FCS, and HORT agents could be a source of peer-to-peer training because they scored higher in effort expectancy and self-efficacy. These agents should be considered for training due to their technology experience and willingness to serve as innovators. Skilled agents are change agents because they “provide a communication link between a resource system with some kind of expertise and a client system” (Rogers, 2003, p. 68). Rogers’ (2003) definition of a change agent can be demonstrated by CEAs influencing clients’ decisions in a way that is beneficial to the Texas A&M AgriLife Extension Service. As Extension continues to adapt to new technologies; administration, IT, and CEAs “can help build a creative and proactive approach...to bring about a desired change” (Mitchell & Gillis, 2009, para. 36) of use and acceptance. Skilled agents tend to have more experience with technology tools (Enfield, Schmitt-McQuitty & Smith, 2007) such as Skype™, WordPress™, Lync™, Outlook™, and Audacity™ to name a few. They also tend to be very effective in their teaching and training efforts due to their background in experiential learning (Enfield, 2001). Again, their willingness to learn and use of technology makes them prime candidates to teach fellow Extension agents and paraprofessionals.

FCS agents also scored higher in SE and EE. “EE is defined as the degree of ease associated with the use of a system” (Venkatesh et al., 2003). ALIT training could

be offered to skilled agents in teaching others to utilize Lync™ features mandated by Extension. Extension mandated specific features that would assist in distance communication and collaboration among CEAs to curb travel expenses, save time, and enhance agents' technical skills. These features include: (a) instant message, (b) call with audio, (c) video call, (d) recording, (e) sharing, and (f) attaching documents. It would appear some agents did not understand how to use all six Lync™ features. Assistance focusing on only a few features at a time would help users better understand how to incorporate them into daily usage. Opportunities should be provided for training to further increase observability of features (one-on-one and peer groups). Performance expectancy could be included in training to assist individuals in using Lync™ to improve job performance (Venkatesh, et al., 2003). Knowing how to use Lync™ features would effectively improve productivity for Extension as well as the individual.

Summary

For this study, Microsoft® Lync™ was considered an innovation for communication and collaboration among Extension agents. Previous research on communication and collaboration tools has used UTAUT (Venkatesh et al., 2003) as an appropriate instrument to measure these constructs. Results in this study indicated that county Extension agents from the Texas A&M AgriLife Extension Service moderately agreed to questions included in the Microsoft® Lync™ Technology Use and Acceptance survey instrument. Thus, the diffusion of innovations has remained important to Extension professionals and academia as well and continues to be helpful in many professional fields (Rogers, 2003).

The Unified Theory of Acceptance and Use Technology model was originally created to offer business managers help in reaching employees and learning what motivates those employees to accept a new technology (Venkatesh et al., 2003, p. 426). Moreover, “the basic concept underlying user acceptance is individual reactions to using information technology, intentions to use information technology, and actual use of information technology” (Venkatesh et al., 2003, p. 427). UTAUT proved to be a reliable model used in assessing technology use and acceptance in the communication/collaboration tool used by Extension.

The survey research design was used with an on-line questionnaire containing 23 items. Again, the questionnaire was modified from the UTAUT and was found to be a reliable and valid instrument. The UTAUT scale was developed by Venkatesh et al. (2003) to assess user’s technology preferences. PE, EE, and SE constructs were examined in this study. Extension agents’ preference of Lync™ was measured for PE and EE on a seven-point summated scale: 1 = *strongly disagree*, 2 = *moderately disagree*, 3 = *somewhat disagree*, 4 = *neutral (neither disagree nor agree)*, 5 = *somewhat agree*, 6 = *moderately agree*, and 7 = *strongly agree* (Venkatesh et al., 2003). Constructs of the UTAUT were calculated *ex post facto*. PE had a reliability coefficient of .92 and EE of .91. SE was assessed for internal consistency with a reliability coefficient of .96. Thus, the internal consistency of SE, PE, and EE was reliable and acceptable. The level of significance was .05.

In addition, respondents were between somewhat agree and moderately agree for performance expectancy, between somewhat agree and moderately agree for the

construct of effort expectancy, with the negative statement trending at moderately disagree, and between somewhat agree and moderately agree for the construct of self-efficacy. It was apparent there was a drop in responses by participants when answering the questions related to the comfort level of using Microsoft® Lync™ features, but there were still enough responses to complete the descriptive analysis. The respondents had a wider range from somewhat uncomfortable to somewhat comfortable in using Microsoft® Lync™ features. Overall, females had more positive perceptions about the acceptance and use of Microsoft® Lync™. The second demographic value that demonstrated significant differences were the program areas of 4-H, FCS, and HORT. Overall, the 4-H agents had significantly higher means on the items regarding Microsoft® Lync™ usage being important to AgriLife Extension, liking to work with Lync™, communicating effectively using Lync™, and motivation to use Lync™ to learn more about its features. On the item “How proficient are you in using Lync™” the HORT program area had the highest mean. This subgroup is proportionately a smaller subset of county Extension agents and thus has a smaller number of respondents.

In conclusion, Microsoft® Lync™ has proven to be an effective communication and collaboration tool for the Texas A&M AgriLife Extension Service. Based upon Roger’s diffusion of innovation (2003), ease of use and flexibility of use in the agents’ own offices is a relative advantage because it saves time and money in travel and enhances communication across the state to help agents better perform their jobs and reach clients. Further, saving time on tasks is compatible with Extension’s requirements for accountability and interactions that are easily achieved and understandable.

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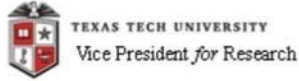
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APPENDIX A

Institutional Review Board

Approval Letter



December 2, 2013

Dr. Courtney Meyers
Ag Ed & Communications
Mail Stop: 2131

Regarding: 504261 Assessing the Use of an Online Communication Tool in the Texas A&M
AgriLife Extension Service Among County Extension Agents

Dr. Courtney Meyers:

The Texas Tech University Protection of Human Subjects Committee approved your claim for an exemption for the protocol referenced above on December 2, 2013.

Exempt research is not subject to continuing review. However, any modifications that (a) change the research in a substantial way, (b) might change the basis for exemption, or (c) might introduce any additional risk to subjects must be reported to the Human Research Protection Program (HRPP) before they are implemented.

To report such changes, you must send a new claim for exemption or a proposal for expedited or full board review to the HRPP. Extension of exempt status for exempt protocols that have not changed is automatic.

The HRPP staff will send annual reminders that ask you to update the status of your research protocol. Once you have completed your research, you must inform the HRPP office by responding to the annual reminder so that the protocol file can be closed.

Sincerely,

Rosemary Cogan, Ph.D., ABPP
Protection of Human Subjects Committee

Box 41075 | Lubbock, Texas 79409-1075 | T 806.742.3905 | F 806.742.3947 | www.vpr.ttu.edu
An EEO/Affirmative Action Institution

APPENDIX B

Collaborative Institutional Training Initiative (CITI)

Human Research Curriculum Completion Reports

Course/Course Refresher

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)
HUMAN RESEARCH CURRICULUM COMPLETION REPORT**
Printed on: 07/25/2014

LEARNER	Aimee Sandifer (ID: 2276341)
PHONE	5038346191
EMAIL	k-dooley@tamuedu
INSTITUTION	Texas A&M University
EXPIRATION DATE	05/29/2014

IRB REFERENCE RESOURCE: All CITI modules are available for ongoing use and reference while your job title is Learner Group. If you are required to complete the CITI modules as a prerequisite for conducting human subjects research, you should enroll in a Learner Group listed above and complete all requirements. If you enroll in this group you will be required to complete ALL CITI modules. You may change your Learner Group status to "IRB Reference Resource" later to access/review any of the CITI modules.

COURSE STAGE:	IRB Reference Basic
PASS ED ON:	05/29/2011
REFERENCE ID:	6082963

REQUIRED MODULES	DATE COMPLETED	SCORE
Statistics in Research	05/02/11	10/10 (100%)
Introduction	05/02/11	No Quiz
ELECTIVE MODULES	DATE COMPLETED	SCORE
History and Ethical Principles - SBE	05/02/11	4/4 (100%)
History and Ethics of Human Subjects Research	05/02/11	6/6 (100%)
Defining Research with Human Subjects - SBE	05/02/11	4/5 (80%)
The Regulations - SBE	05/02/11	4/5 (80%)
Basic Institutional Review Board (IRB) Regulations and Review Process	05/02/11	5/5 (100%)
Assessing Risk - SBE	05/02/11	4/5 (80%)
Informed Consent - SBE	05/27/11	4/5 (80%)
Informed Consent	05/27/11	3/4 (75%)
Privacy and Confidentiality - SBE	05/27/11	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Research	05/27/11	3/4 (75%)
Records-Based Research	05/28/11	2/2 (100%)
Genetic Research in Human Populations	05/28/11	2/2 (100%)
Research With Protected Populations - Vulnerable Subjects: An Overview	05/28/11	4/4 (100%)
Research with Prisoners - SBE	05/28/11	4/4 (100%)
Vulnerable Subjects - Research Involving Prisoners	05/28/11	4/4 (100%)
Research with Children - SBE	05/28/11	4/4 (100%)
Vulnerable Subjects - Research Involving Children	05/28/11	3/3 (100%)
Research in Public Elementary and Secondary Schools - SBE	05/28/11	4/4 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates	05/28/11	3/3 (100%)
International Research - SBE	05/28/11	3/3 (100%)
International Studies	05/28/11	1/1 (100%)
Internet Research - SBE	05/28/11	4/4 (100%)
Group Harms: Research With Critically or Medically Vulnerable Groups	05/28/11	2/3 (67%)
FDA-Regulated Research	05/28/11	5/5 (100%)
Human Subjects Research at the VA	05/28/11	2/3 (67%)
Research and HIPAA Privacy Protections	05/29/11	11/11 (100%)
Vulnerable Subjects - Research Involving Workers/Employees	05/29/11	4/4 (100%)
Hot Topics	05/27/11	No Quiz
Conflicts of Interest in Research Involving Human Subjects	05/29/11	2/2 (100%)
The IRB Member Module - What Every New IRB Member Needs to Know	05/29/11	4/5 (67%)

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid independent learner. Misused information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul B. Scheweiger, Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 05/29/2014

LEARNER Aimee Sandiford (ID: 2276341)
PHONE 9038346191
EMAIL k-dooley@tamu.edu
INSTITUTION Texas A&M University
EXPIRATION DATE 05/28/2017

IRB REFERENCE RESOURCE : All CITI modules are available for ongoing use and reference when you join this Learner Group. If you are required to complete the CITI modules as a prerequisite for conducting human subjects research, you should enroll in a Learner Group listed above and complete all requirements. If you enroll in this group you will be required to complete ALL CITI modules. You may change your Learner Group status to "IRB Reference Resource" later to access review any of the CITI modules.

COURSE/STAGE: IRB Reference Refresher/2
PASSED ON: 05/29/2014
REFERENCE ID: 12701738

REQUIRED MODULES	DATE COMPLETED	SCORE
SBE Refresher 1 – Defining Research with Human Subjects	05/29/14	2/2 (100%)
SBE Refresher 1 – Privacy and Confidentiality	05/29/14	2/2 (100%)
SBE Refresher 1 – Assessing Risk	05/29/14	2/2 (100%)
SBE Refresher 1 – Research with Children	05/29/14	2/2 (100%)
SBE Refresher 1 – International Research	05/29/14	2/2 (100%)
Blomed Refresher 1 - Instructions	05/29/14	No Quiz
ELECTIVE MODULES	DATE COMPLETED	SCORE
Blomed Refresher 2 - Instructions	05/29/14	No Quiz
SBE Refresher 1 – History and Ethical Principles	05/29/14	2/2 (100%)
SBE Refresher 1 – Federal Regulations for Protecting Research Subjects	05/29/14	2/2 (100%)
SBE Refresher 1 – Informed Consent	05/29/14	2/2 (100%)
SBE Refresher 1 – Research with Prisoners	05/29/14	2/2 (100%)
SBE Refresher 1 – Research In Educational Settings	05/29/14	2/2 (100%)
SBE Refresher 1 – Instructions	05/29/14	No Quiz
Blomed Refresher 1 – History and Ethical Principles	05/29/14	2/2 (100%)
Blomed Refresher 1 – Regulations and Process	05/29/14	3/3 (100%)
Blomed Refresher 1 – Informed Consent	05/29/14	2/2 (100%)
Blomed Refresher 1 – SBR Methodologies In Biomedical Research	05/29/14	3/3 (100%)
Blomed Refresher 1 – Records-Based Research	05/29/14	2/2 (100%)
Blomed Refresher 1 – Genetics Research	05/29/14	2/2 (100%)
Blomed Refresher 1 – Research Involving Vulnerable Subjects	05/29/14	2/2 (100%)
Blomed Refresher 1 – Vulnerable Subjects - Prisoners	05/29/14	2/2 (100%)
Blomed Refresher 1 – Vulnerable Subjects - Children	05/29/14	4/4 (100%)
Blomed Refresher 1 – Vulnerable Subjects - Pregnant Women, Human Fetuses, Neonates	05/29/14	3/3 (100%)
Blomed Refresher 1 – FDA-Regulated Research	05/29/14	3/3 (100%)
Blomed Refresher 2 – History and Ethical Principles	05/29/14	3/3 (100%)
Blomed Refresher 2 – Regulations and Process	05/29/14	2/2 (100%)
Blomed Refresher 2 – Informed Consent	05/29/14	3/3 (100%)
Blomed Refresher 2 – SBR Methodologies In Biomedical Research	05/29/14	4/4 (100%)
Blomed Refresher 2 – Genetics Research	05/29/14	2/2 (100%)
Blomed Refresher 2 – Records-Based Research	05/29/14	3/3 (100%)
Blomed Refresher 2 – Research Involving Vulnerable Subjects	05/29/14	1/1 (100%)
Blomed Refresher 2 – Vulnerable Subjects – Prisoners	05/29/14	2/2 (100%)
Blomed Refresher 2 – Vulnerable Subjects – Children	05/29/14	3/3 (100%)
Blomed Refresher 2 – Vulnerable Subjects – Pregnant Women, Human Fetuses, Neonates	05/29/14	2/2 (100%)
Blomed Refresher 2 – FDA-Regulated Research	05/29/14	3/3 (100%)
Blomed Refresher 2 – HIPAA and Human Subjects Research	05/29/14	5/5 (100%)
Blomed Refresher 2 – Conflicts of Interest In Research Involving Human Subjects	05/29/14	3/3 (100%)
How to Complete the CITI Refresher Course and Receive a Completion Report	05/29/14	No Quiz

APPENDIX C

Survey Instrument E-mail Invitation Letter

From Director Steele, Texas A&M AgriLife Extension Service

Aimee Sandifeer

From: Maryland Mitchell on behalf of Douglas Steele
Sent: Wednesday, January 15, 2014 8:15 AM
Subject: Survey Notice

Follow Up Flag: Follow up
Flag Status: Completed

TO: All County Extension Agents**We Need YOUR Help:**

Aimee Sandifeer is currently working on the dissertation: "Assessing the Use of an Online Communication Tool in the Texas A&M AgriLife Extension Service among County Extension Agents" for the Doc at a Distance program through Texas A&M University and Texas Tech University. I am requesting your help in assessing the use of Microsoft Lync™. The goal in gaining this understanding is to ultimately improve online communications. The best way to make this assessment is to ask you about your day-to-day Lync™ usage.

Taking a few moments of your time to share your Lync™ usage and experience will ultimately benefit the quality of communications, technical assistance and staff training. It will take approximately 15 minutes to complete the survey. Your responses are voluntary and will be kept confidential. The web link to the online questionnaire:

http://tamuag.qualtrics.com/SE/?SID=SV_8DlIpN6EbpWGubj

Your response is important. You can complete the survey questionnaire at your convenience anytime in the in the next three weeks. The survey will close Monday January 27.

If you have any questions about this survey instrument, please contact Aimee Sandifeer at (903) 834-6191 and/or Dr. Courtney Meyers at (806) 742-2816, or Dr. Kim Dooley at (979) 862-2262, or by email at asandifeer@ag.tamu.edu, courtney.meyers@ttu.edu, or k-dooley@tamu.edu. Your feedback will be invaluable in the improvement of Lync™ services. Thank you in advance for your cooperation.

Douglas L. Steele, Director
Texas A&M AgriLife Extension Service
Douglas.Steele@ag.tamu.edu
600 John Kimbrough Blvd. Ste. 509
7101 TAMU
College Station TX 77843-7101
Ph. 979-845-7967
Fax: 979-845-9542
Maryland Mitchell, Assistant to the Director

APPENDIX D

Qualtrics® On-line Questionnaire:

Microsoft® Lync™ Survey Instrument: Technology Use & Acceptance

Microsoft Lync™ Survey Instrument: Technology Use & Acceptance

Microsoft Lync™ Survey Instrument: Technology Use & Acceptance

Directions: Please rate the extent to which you agree with each statement below by indicating the most appropriate option.

Microsoft Lync™ connects users in new ways enabling them to reach others in various locations.

Scale:

- 1 = *Strongly Disagree*
- 2 = *Moderately Disagree*
- 3 = *Somewhat Disagree*
- 4 = *Neutral (Neither Agree or Disagree)*
- 5 = *Somewhat Agree*
- 6 = *Moderately Agree*

I find Microsoft Lync™ easy to use.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

Using Microsoft Lync™ enables me to accomplish tasks more quickly.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

My interaction with Microsoft Lync™ is clear and understandable.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

I like working in Microsoft Lync™.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

Microsoft Lync™ use is important to Texas A&M AgriLife Extension.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

I use Microsoft Lync™ most often for one-to-one conversations.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

I use Microsoft Lync™ most often for group conversations (meetings).

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

Microsoft Lync™ use is not important to Texas A&M AgriLife Extension.

- ☐ Strongly Disagree
- ☐ Moderately Disagree
- ☐ Somewhat Disagree
- ☐ Neutral (Neither Agree or Disagree)
- ☐ Somewhat Agree
- ☐ Moderately Agree
- ☐ Strongly Agree

Self-efficacy

Self-efficacy

<https://tamuag.az1.qualtrics.com/WRQualtricsControlPanel/Ajax.php?action=GetSurveyPr...> 7/25/2014

Directions: Please rate the extent to which you agree with each statement below by indicating the most appropriate option.

Self-efficacy is defined as one's beliefs in one's capability to succeed in different situations.

Scale:

- 1 = *Not at All*
- 2 = *Very Little*
- 3 = *Somewhat*
- 4 = *Quite A Bit*
- 5 = *A Great Deal*

How proficient are you in using Microsoft Lync™?

- ☐ Not at All
- ☐ Very Little
- ☐ Somewhat
- ☐ Quite A Bit
- ☐ A Great Deal

How motivated are you to use Microsoft Lync™ to learn more about its features?

- ☐ Not at All
- ☐ Very Little
- ☐ Somewhat
- ☐ Quite A Bit
- ☐ A Great Deal

How much does Microsoft Lync™ enhance your daily work?

- ☐ Not at All
- ☐ Very Little
- ☐ Somewhat
- ☐ Quite A Bit
- ☐ A Great Deal

How much does Microsoft Lync™ assist you in communicating more effectively?

- ☐ Not at All
- ☐ Very Little
- ☐ Somewhat
- ☐ Quite A Bit
- ☐ A Great Deal

Microsoft Lync™ Features

Microsoft Lync™ Features

Directions: Please rate the extent to which you are comfortable with each statement below by indicating the most appropriate option.

Microsoft Lync™ features allow users to access voice, video, messaging, and presence as explained in the Microsoft Lync™ Server Product Guide (2010).

Scale:

- 1 = Completely Uncomfortable
- 2 = Uncomfortable
- 3 = Somewhat Uncomfortable
- 4 = Not Applicable (have not used this feature)
- 5 = Somewhat Comfortable
- 6 = Comfortable
- 7 = Completely Comfortable

How comfortable are you in using the Instant Message (Text Chat) feature within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable
- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Comfortable

How comfortable are you in using the Call with Audio feature within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable
- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Comfortable

How comfortable are you in using the Video Call feature within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable
- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Comfortable

How comfortable are you in using the Recording feature within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable
- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Uncomfortable

How comfortable are you in using the Attaching document(s) feature within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable

- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Uncomfortable

How comfortable are you in using the Sharing features within Microsoft Lync™?

- ☐ Completely Uncomfortable
- ☐ Uncomfortable
- ☐ Somewhat Uncomfortable
- ☐ Not Applicable (have not used this feature)
- ☐ Somewhat Comfortable
- ☐ Comfortable
- ☐ Completely Comfortable

Demographics

Demographics

Directions: Please indicate the most appropriate option for each statement below.

Gender:

- ☐ Male
- ☐ Female

Please indicate your Extension Region:

- ☐ North (Districts 1 and 2)
- ☐ Southeast (Districts 9 and 11)
- ☐ East (Districts 4 and 5)
- ☐ Central (Districts 3 and 8)
- ☐ South (Districts 10 and 12)

<https://tamuag.az1.qualtrics.com/WRQualtricsControlPanel/Ajax.php?action=GetSurveyPr...> 7/25/2014

- ☐ West (Districts 6 and 7)
- ☐ Campus (College Station)

Please indicate your Extension experience:

- ☐ 1-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16-20 years
- ☐ 21-25 years
- ☐ 26-30 years
- ☐ More than 30 years

Please indicate your Extension Position:

- ☐ County Extension Agent
- ☐ Specialist
- ☐ Support Staff
- ☐ Administrator
- ☐ Other

Indicate the Extension program area to which you most closely identify:

- ☐ AGNR – Agriculture and Natural Resources
- ☐ FCS - Family and Consumer Sciences
- ☐ 4-H and Youth Development
- ☐ Horticulture
- ☐ Administration/Management

Please indicate the total population of your county.

- ☐ 250,000 or greater
- ☐ Less than 250, 000 but greater than 50,000

- ☐ Less than 50,000
- ☐ Not Applicable

Improving your Lync(tm) Experience

Improving your Lync™ Experience

When answering, please provide as much detail as possible.

How is technology or Internet connectivity limited in your office?

^

v

What could be improved to enhance your use of Microsoft Lync(TM)?

^

v

How do you use Microsoft Lync(TM) to assist co-workers?

^

v

APPENDIX E

Texas A&M AgriLife Extension Service

County Extension Agents (CEAs)

State-Wide Population Snapshot = 636 CEAs

January 15, 2014

Aimee Sandifeer

From: Jim Segers
Sent: Wednesday, January 15, 2014 11:51 AM
To: Aimee Sandifeer
Subject: Survey and CEA All List Capture
Attachments: EXT - CEA ALL list capture 15 Jan 2013 - 636 people.xls

Follow Up Flag: Follow up
Flag Status: Completed

Aimee,
Attached is a spreadsheet of agents names and addresses captured this morning. This is the contents of the Outlook distribution list EXT – CEA ALL

The total number of entries is 636. That is more than the estimated number of 550. The differences are due to the fact this includes CEP agents and special project agents, that is good, we overlooked these people earlier. The District Office Managers maintains these so there could be some retirees also that should not be in there. Maryland will get bounce backs on those and let us know about them.

This number represents the total number of potential responses from county agents. You will use this to determine your percentage response rate. For example if you get back 450 responses your response rate will be $450 / 636 * 100 = 70.56\%$.

Your real “N” for your statistics will be the number of valid responses you have to include in your analysis. In the example above that would be 450.

The next step you will make is to send a reminder to the EXT – CEA All list next Tuesday. I see he did not use the amended cutoff date to February 3 but used the original message showing the January 27 date. So if you leave it as is the survey will be open for 13 days. I suggest you send out a second reminder on January 27 and announce your holding the survey open until Feb 4. That way you will include the full 3 weeks you specified in your methodology (21 days total).

Jim ...

James C. Segers, PhD
IT Coordinator Texas A&M AgriLife Extension Service
AgriLife Information Technology

578 John Kimbrough Blvd, Ste 329
2468 TAMU | College Station, TX 77843-2468
P: 979.845.9689
j-segers@tamu.edu
<http://ait.tamu.edu>

APPENDIX F

Survey Instrument E-mail Reminder Message:

First Notice

Aimee Sandifeer

From: Aimee Sandifeer
Sent: Thursday, January 23, 2014 7:51 AM
To: Aimee Sandifeer
Cc: Kim Dooley; courtney.meyers@ttu.edu; Jim Segers (j-segers@tamu.edu); Douglas Steele; Maryland Mitchell
Subject: Reminder: Microsoft Lync™ Survey Instrument: Technology Use & Acceptance among County Extension Agents in the Texas A&M AgriLife Extension Service

Dissertation Title: “Assessing the Use of an Online Communication Tool in the Texas A&M AgriLife Extension Service among County Extension Agents”

Hello County Extension Agents:

Last week, you received an email invitation requesting your response to a survey questionnaire about your usage of the Microsoft Lync™ technology. Your response to this survey is important and will help in developing Lync™ assistance and training suitable to your needs.

If you have already completed this questionnaire, thank you. If you have not, we would greatly appreciate your response.

The survey instrument is located online and can be completed at your convenience. It will take a maximum of 15 minutes to complete. Your responses will be kept confidential. Please follow the web link below to complete the brief questionnaire.

http://tamuag.qualtrics.com/SE/?SID=SV_8DIIPN6EbpWGubj

The online questionnaire deadline has been extended and will close on February 5, 2014. Expect to receive one more reminder prior to the deadline. If you have questions, contact Aimee Sandifeer or Dr. Courtney Meyers at (806) 742-2816, or by email at asandifeer@ag.tamu.edu or courtney.meyers@ttu.edu. Your feedback will be invaluable in the improvement of Lync™ services. Thank you in advance for your cooperation.

Sincerely,

Aimee Sandifeer, Graduate Student

Courtney Meyers, Assistance Professor

APPENDIX G

Survey Instrument E-mail Reminder Message:

Second Notice

Aimee Sandifeer

From: Aimee Sandifeer
Sent: Wednesday, January 29, 2014 6:49 AM
To: Aimee Sandifeer
Cc: Kim Dooley; courtney.meyers@ttu.edu; Jim Segers; Douglas Steele; Maryland Mitchell
Subject: Attention: Final Reminder for the Microsoft Lync™ Survey Instrument
Importance: High

Dissertation Title: "Assessing the Use of an Online Communication Tool in the Texas A&M AgriLife Extension Service among County Extension Agents"

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Last week, you received a reminder email invitation requesting your response to a survey questionnaire about your usage of the Microsoft Lync™ technology. Your response to this survey is important and will help in developing Lync™ assistance and training suitable to your needs.

If you have already completed this questionnaire, thank you. If you have not, we would greatly appreciate your response.

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Sincerely,

Aimee Sandifeer, Graduate Student

Courtney Meyers, Assistance Professor